COMMODORE user

INCORPORATING VIC COMPUTING

FEBRUARY 1985 PRICE 95p

COMPUTER BLIND?

EASY BASIC COURSE STARTS INSIDE

WIN

THE DESIGNER'S PENCIL

GRAPHICS – PICK OF THE DRAWING .. AIDS

FREE- SOFTWARE GUIDE

36 PAGES OF REVIEWS

ANIROG

AT LAST 1 TAPE 2 MACHINES

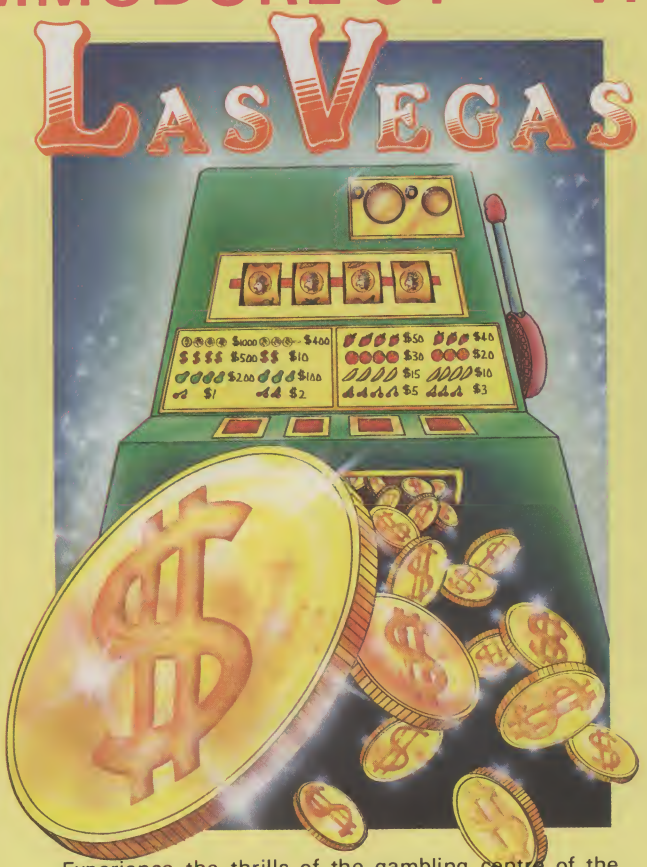
COMMODORE 64 VIC 20

MINIPEDES

It is the height of summer and the garden is buzzing with bees and bugs. Minipede, a mutant mushroom monster advances relentlessly towards you, devouring everything in its path. 15 screens of fast and furious action make Minipedes a real challenge to the arcade enthusiasts.

Commodore 64 - VIC 20 16K

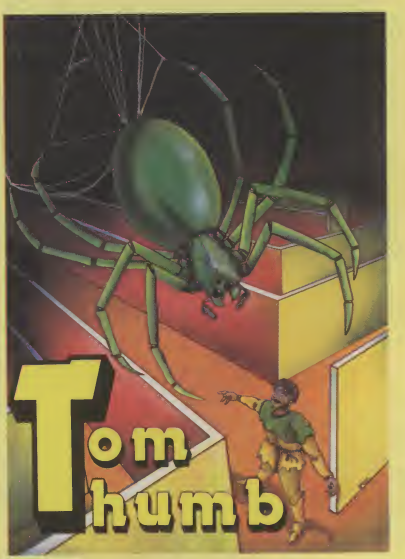
J.S. or K.B. £5.95



Experience the thrills of the gambling centre of the world from the comfort of your own armchair. Both versions include features such as spinning reels, hold, number-feature nudges, gamble/collect, spin score and hi-score. The Commodore 64 version has additional features, nudge, reward lucky 3, step-a-win and hi-score tables.

As with any arcade machine the odds are stacked against you!

Commodore 64 - VIC 20 16K K.B. £5.95



TOM THUMB

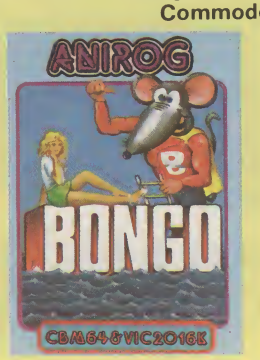
Tom is trapped in a scrolling maze populated by loathsome creatures, guardians of the lost treasures of the Magezam. Six separate screens, five levels of difficulty and four player option provide an exciting challenge for the whole family. Another stunner from the author of **BONGO!**

(1 to 4 players)

Commodore 64 - VIC 20 16K

J.S. £5.95

J.S. AND KEYBOARD £7.95



J.S. £7.95

J.S. AND KEYBOARD £5.95

J.S. or KEYBOARD £7.95

J.S. £7.95

COMMODORE 64 VIC 20

TRADE ENQUIRIES: ANIROG SOFTWARE LTD. 29 WEST HILL DARTFORD KENT (0322) 92513/8

MAIL ORDER: 8 HIGH STREET HORLEY SURREY 24 HOUR CREDIT CARD SALES HORLEY (02934) 6083

PAYMENT BY CHEQUE P.O. ACCESS/VISA 50p POSTAGE & PACKAGING

a diamond can also claim his or her share of the Royalty Fund.

This grows with every copy sold up to a maximum of £1 million.

The Spirit of the Stones book is a great read.

The Spirit of the Stones software is great entertainment.

But they're much more than that.

They're an adventure.

A fascinating tale of mystery and imagination.

A voyage of discovery on the Isle of Wight.

A voyage of discovery

STONES HIDDEN ON THE ISLE OF WIGHT.

There are 41 of them.

41 real diamonds hidden somewhere on the island, just waiting to be discovered.

40 diamonds set in stoneware talismans. And the great Wight Eye itself, the most fabulous diamond of them all.

Only one man knows where they are hidden, and he's not saying.

All that he has to say he's said already. In the Spirit of the Stones.

It's a book and a computer game.

And together they reveal the whereabouts of all those diamonds.

But – and here's the catch...in the form of riddles and clues.

Solve the puzzles in the program and you'll find it easier to solve the puzzles in the book.

Solve the puzzles in the book and one (or more) diamonds can be yours.

Forever. And ever.

You don't even have to go to the Isle of Wight. ('Though should you want to, we've put a bargain holiday offer in every pack).

You simply work out where the diamonds are, and post off your claim.

Whoever discovers

into an unknown world of poltergeists, unholy spirits, banshees, manticores and demons.

The Spirit of the Stones is as entertaining as it can be rewarding. And, like all of our software, it has been specifically designed to get the best out of Commodore hardware.

You can't choose better.

Commodore software: it costs no more, even though there's more to it.

commodore
COMPUTER SOFTWARE

SPIRIT OF THE STONES DISK OR CASSETTE WITH BOOK £14.99.

System 3 Software
PRESENTS
Multi Arcade Activity
From America

• ALL TYPES OF TRADE ENQUIRIES INVITED

No.1 USA TITLES!

MOTOCROSS!
SUICIDE STRIKE
JUICE!

for the commodore 64

SYSTEM 3 SOFTWARE EXCLUSIVE IMPORT PRICE
WAS ~~£24.95~~
NOW £7.95

AVAILABLE AT Boots, W H Smith's, Lasky's, John Menzies, Woolworths and all good computer stores

DISTRIBUTORS. Microdealer, Tiger Distribution and Centre Soft

At the start/finish line you strap on your helmet, check your instruments, gun your engine and surge onto the course. Through the corners, up the hills, into the ruts and down the straights you manoeuvre for position and try to beat the clock.
Stay ahead if you can. But whatever you do, stay on course.
If you don't, one of two things will happen.
You'll slow down and lose valuable seconds getting back into the race. Or worse, you'll end up on the seat of your pants.
Who says computers don't like to get dirty?

Your agents risked their lives to find the enemy's secret headquarters.
Now you're risking yours to destroy it.
And they know you're coming.
Time is short, so you'll have to fly. But fly too fast, and you'll squander your precious fuel supply.
Needless to say, they don't issue parachutes on missions like this.
As you soar over hundreds of miles of distinctly unfriendly territory, the action is thick, fast and frighteningly three-dimensional.
Fighter aircraft. Surface-to-air missiles. Helicopter gunships. The attacks come from every direction.
Even from behind.

Edison, the kinetic android, leads a frustrating life.
All he really wants to do is build his circuit boards and go with the flow. But things keep getting in the way.
Nohms — a negative influence — bug him regularly. They're [illegible] but only from a distance.
Flash, the lightening bolt, disconnects everything in his path. Which can be frustrating after a hard day on the circuit.
And the cunning Killerwatt is out to fry poor Edison's brains.
But our hero simply solders on.
Except in the ultimate current event. You'll get a charge out of it. And a few jolts, too.

HOW TO ORDER

To purchase any of the above games, simply fill in your name and address on a piece of paper, enclosing your cheque made payable to: SYSTEM 3 SOFTWARE, and post to the address below. Please allow 7 to 14 days for delivery.
Overseas Orders. Add £1.00 per game ordered.

DO YOU WRITE YOUR OWN PROGRAMMES?
If you have a marketable programme send it to us for evaluation.
Excellent Payment Terms and Marketing plans.
Send to Product Development Manager at the address below.

System 3 Software

South Bank House, Black Prince Road, London SE1
Tel: (01) 587 0873

COMMODORE USER

Contents

News
We're first with the latest news from the world of the Commodore — 8

The Happy Hacker
We begin a regular series by the hacker's hack, Robert Schifreen, that'll keep you in touch with Compunet and Micronet. — 19

Business User
In this month's business section, Karl Dallas investigates an application for the 64 in your chemist, and brings us some up-to-date news. — 26

Victuals
Among this month's batch of programs is our first ever for the Commodore 16. There's also an epidemic on the 64 and some useful routines. — 28

Operation Salvage
A corrupted or NEWed program can be bad for the blood pressure — Frank Randall tells you how to recover your cool. — 44

Plugging into Epson
Chris Durham reviews the Comprint interface which makes an Epson printer compatible with your 64. — 47

Beginners Basic
The first of a four-part series by Brian Grainger designed to lead you gently into the world of Basic programming. — 54

The Forth Dimension
This month Richard Hunt gets to grips with the knotty problems of string handling and keyboard input. — 56

Competition
Answer three ridiculously simple questions and win Activision's Designer's Pencil. — 59

From Paintpots to Pixels
The graphics capabilities of the 64 are impressive, but to get the best of them you'll need to use some graphics software. We help you sort through the possibilities. — 60

Man at the Top
Bohdan Buciak went to Corby to find out from Commodore's general manager, Howard Stanworth, how the company was doing and what he had in mind for the future. — 70

Making the Grade
If you break out into a cold sweat at the thought of the dreaded 'O' Level exams, help is at hand with some revision programs. Colleen Young adjudicates. — 76

Tommy's Tips
Tommy emerges once again with more answers to those everyday problems . . . — 85

People

Editor	Eugene Lacey
Deputy Editor	Bohdan Buciak
Staff Writer	Mike Pattenden
Design/Production	Lynda Skerry
Contributors	Chris Durham, John Ransley, Dan Gutman, Fred Reid, Tom Jeffries
Advertising Manager	Julie Madigan
Advertisement Executive	Julia West
Advertisement copy control	Josephine Collins
Publisher	Rita Lewis

Registered Offices:
Priory Court,
30-32 Farringdon Lane,
London EC1R 3AU.

1984 An EMAP Publication

Editorial and Advertising
01-251 6222

Subscriptions Back Issues
0732 351216

THE SOFTWARE CENTRE
1 Princeton Street, London WC1
01-430 0954

Business accounts

Sales Ledger (Anagram) d	75.00
Purchase Ledger (Anagram) d	75.00
Cashbook (Anagram) d	75.00
Sales Ledger (Ramtop) t	14.50
Purchase Ledger (Ramtop) t	14.50
Accounts Package (Ramtop) d,t	95.00
Cashbook (Microsimplex) d	172.50
Cashbook (Gemini) d	64.95
Cashbook (Gemini) t	59.95
Final Accounts (Gemini) d	64.95
Final Accounts (Gemini) t	59.95
Inventory 64 (MMS) d	29.95
Stock Control (Gemini) d	24.95
Stock Control (Gemini) t	19.95
Payroll 64 (Studio) d	34.95

Home applications

Budgeteer (Adamsoft) t	8.95
Checkbook Manager (Adamsoft) d	14.95
Home Accounts (Gemini) d	24.95
Home Accounts (Gemini) t	19.95
Home Office (Audiogenic) t	14.95
Home Accounts (Fieldmaster) d	29.95

Database systems

Magpie 64 (Audiogenic) c+d	45.00
Mailpro 64 (Profile) d	79.35
Oracle 64 (B.I.) d	125.00
Practfile 64 (MMS) d	44.50
Simply File 64 (Simple) d	69.00
Superbase 64 (Precision) d	89.95
Figaro 64 (Saxon) d	86.25
Database (Gemini) d	24.95
Database (Gemini) c	19.95

Spreadsheets

Busicalc (Supersoft) d,t	17.95
Busicalc III (Supersoft) d	75.00
Calcresult Adv. (Handic) c+d	89.00
Easy Calcresult (Handic) d	49.95
Multiplan 64 (Hesware) d	104.95
Practicalc 64 (MMS) d	44.50
Practicalc 64 (MMS) t	39.95
Practicalc II (MMS) d	69.95

d = disk t = tape c = cartridge

ALL IN STOCK NOW — Callers welcome

(10am-6pm incl Saturdays)

Mail Order: Cheque or PO — add £3 for items over £30, others free.
Credit cards (Access/Visa): phone or write. Immediate despatch.

The 64 Software Centre,
1 Princeton Street, London WC1

Please supply the following items:

1 .....Qty.. @£ .....
2 .....Qty.. @£ .....
3 .....Qty.. @£ .....
4 .....Qty.. @£ .....

TOTAL £ .....
POSTAGE £ .....
TOTAL £ .....

Name ..... Address .....
Visa/Access Card No ....
.....
Date ..... Signature .....

Programmers' Aids & Utilities

Jetpack Compiler (DTL) d	39.95
Jetpack Compiler (DTL) c	14.50
Koalapad Tablet c	89.95
Cadpack 64 (Adamsoft) d	35.00
BC Basic (Kuma) c	57.50
Chartpak 64 (Adamsoft) d	24.95
Z Basic Lightning (Oasis) T	14.95
White Lightning (Oasis) T	19.95
Machine Lightning (Oasis) T	29.95
Forth 64 (Audiogenic) c	29.95
Forth 64 Advanced (Hesware) c	54.95
Graphics Designer (Adamsoft) d	19.95
Graphix 64 (Supersoft) t	11.50
Logo (CBM) d	57.50
Master 64 (Supersoft) d	71.30
Mikro Assembler (Supersoft) c	59.80
Pilot (CBM) d	75.00
Printlink 64 (Supersoft) t	32.20
Quickchart 64 (Adamsoft) t	6.95
Screen Graphics (Adamsoft) d	14.95
Simons Basic (CBM) c	47.50
Sprite Aid (Adamsoft) t	6.95
Stat 64 (Handic) c	29.95
Superdisk Utility (Adamsoft) d	12.50
Synthy 64 (Adamsoft) d	14.95
Turtle Graphics II (Hesware) c	54.95
Ultrabasic 64 (Adamsoft) d	24.95
Ultysynth (Quicksilva) t	14.95
Victree 64 (Supersoft) c	56.35
64 Doctor (MMS) d	19.95
Music Master (Supersoft) d	19.95
Master Composer (Access) d	44.95

Word Processors

Heswriter (Hesware) c	39.95
Paperclip 64 (B.I.) d	98.90
Simply Write 64 (Simple) d	46.00
Simply Write 64 (Simple) t	40.25
Vizawrite 64 (Viza) d	79.95
Vizaspell 64 (Viza) d	59.95

Educational & Languages

Essential Italian (Dell) d	16.95
Essential Italian (Dell) t	14.95
Besieged (Sulis) t	9.95
Wordpower (Sulis) t	9.95
Time Traveller (Sulis) t	9.95
Just a Mot (Sulis) t	9.95

various subjects: Callisto, Collins, Commodore t

War simulations

Eagles (SS) d	34.95
Tigers in the Snow (SS) d	34.95
Geopolitique (SS) d	39.95
Baltic 85 (SS) d	44.95

Flight simulators

Flight Path 737 (Anirog) t	7.95
Interdictor Pilot (Supersoft) d	19.95
Interdictor Pilot (Supersoft) c	17.95
Flight Simulator (IFR) d,t	24.50
Flight Simulator II (Sublogic) d	47.50
Flight Simulator II (Sublogic) T	40.00
Solo Flight (US Gold) d,t	14.95
Heathrow (HC) t	7.95

Business Simulations

Commodities (Blue Chip) d	50.00
Baron (Blue Chip) d	50.00

Games

A large assortment on disk, cassette and cartridge.

DO MORE WITH YOUR COMMODORE

MAKE THE MOST OF YOUR COMMODORE COMPUTER WITH THESE BOOKS AND SOFTWARE – THERE'S SOMETHING HERE FOR EVERYONE.

COMMODORE 16

Gateway to Computing with the Commodore 16, Books 1 and 2
'Enter the gateway' and discover a new fun approach to computing and the 16 when you encounter a cast of colourful characters, problems, puzzles and projects. Start from scratch with Book 1 then develop your programming and other skills with Book 2. Ideal for the young – and young at heart!
£4.95 each/ Shiva Books/ Ian Stewart & Robin Jones
(Book 1: ISBN 1 85014 009X; Book 2: ISBN 1 85014 010 3)

Easy Programming: Commodore 16
Ideal for newcomers to computing, this book is a thorough and entertaining introduction to programming on the new C 16.
£5.95 Shiva Book/ Ian Stewart & Robin Jones *(ISBN 1 85014 008 1)*

Commodore 16 Machine Code
Covers every aspect of machine code programming on the C 16, from screen control and graphics to assembly language and debugging techniques.
£6.95 Shiva Book/ Ian Stewart & Robin Jones *(ISBN 1 85014 012 X)*

COMMODORE PLUS/4

Commodore Plus/4 Machine Code
Everything you need to know about machine code programming for the new Commodore Plus/4 – screen and keyboard control, moving graphics and colour – plus descriptions of all the facilities of TEDMON, the C Plus/4's built-in machine code monitor. Packed with simple programs and advice to help you develop your C Plus/4 machine code.
£6.95 Shiva Book/ Ian Stewart & Robin Jones *(ISBN 1 85014 014 6)*

COMMODORE 64 + VIC 20

Commodore Peripherals: A User's Guide
Want to add to your basic 64 or VIC system? Find your way through the peripherals jungle with this easy guide!
£7.95 Compute! Book/ Julie Knott & David Prochnow *(ISBN 0 942386 56 6)*

Compute!'s Commodore Collection Volume 2: Programs for the VIC and 64
£10.95 Compute! Book *(ISBN 0 942386 70 1)*

Compute!'s Third Book of Commodore 64
Outstanding games, applications, tutorials and utilities from Compute!'s magazine and Gazette – plus several never-before-published programs.
£10.95 Compute! Book *(ISBN 0 942386 72 8)*

Gateway to Computing with the Commodore, Books 1 and 2
'Enter the gateway' and have fun with your C 64 while you learn the secrets of successful computing!
£4.95 each/ Shiva Books/ Ian Stewart
(Book 1: ISBN 1 85014 017 0; Book 2: ISBN 1 85014 035 9)

Commodore 64 Programmer's Notebook
First-time users and experienced programmers – cut down errors and ease frustration with this programmer's answer guide, which fills the gap left between the Owner's Manual and the Programmer's Reference Guide and shows you how to master BASIC on the 64.
£14.95 HRW Book/ Earl Savage *(ISBN 0 03 001294 5)*

Mind Moves: Strategic Brain Games for the Commodore 64
Tired of playing arcade games? Looking for strategy games that will challenge and entertain you and your family? Look no further! The eight intriguing games in *Mind Moves* feature strategy, words, adventure, resource management, and much more.
£18.49 dilithium Press/ Book + Disk *(ISBN 0 88056 225 0)*
£18.49 dilithium Press/ Book + Cassette *(ISBN 0 88056 228 5)*

Golden Flutes and Great Escapes for the Commodore 64
Create your own games for the 64 with this straightforward guide – all you need is a small amount of BASIC programming knowledge. Four *complete* game programs are included, ready to run on disk or cassette – Golden Flutes, Great Escapes, Mars, and Treasure Hunt – with full explanations of how everything works. Check them out – then use the book to start programming your own adventure fantasies!
£18.38 dilithium Press/ Book + Disk *(ISBN 0 88056 204 8)*
£18.38 dilithium Press/ Book + Cassette *(ISBN 0 88056 205 6)*

Colour and Graphics for the Commodore 64
£13.95 HRW Book/ Andrew Veronis *(ISBN 0 03 000052 1)*

Compute!'s Reference Guide to CP/M on the Commodore 64 Volume 1
Everything you need to get the most out of Commodore's CP/M package and customise it to suit your own needs.
£11.95 Compute! Book/ James Doody *(ISBN 0 942386 65 5)*

Available from large branches of Boots, Menzies, W. H. Smith and bookshops, computer shops and department stores; or direct from the distributor by filling in the coupon below and sending it with your payment to HOLT SAUNDERS LTD, ACCOUNTS DEPT., 1 ST ANNE'S ROAD, EASTBOURNE BN21 3UN. Please make cheques payable to **Holt Saunders Ltd** *and allow 28 days for delivery.*

*** Free postage & packing on all UK orders ***

WRITE OR PHONE FOR YOUR FREE CATALOGUE

ORDER FORM

Please send me

ISBN	TITLE	QTY	TOTAL PRICE

I enclose payment of £..... by cheque ☐
or debit my credit card:
Amex ☐ Diners Club ☐ Visa ☐ Access ☐ (please tick)
Credit card number

Name (please print) _____ CU 3/85

Address _____

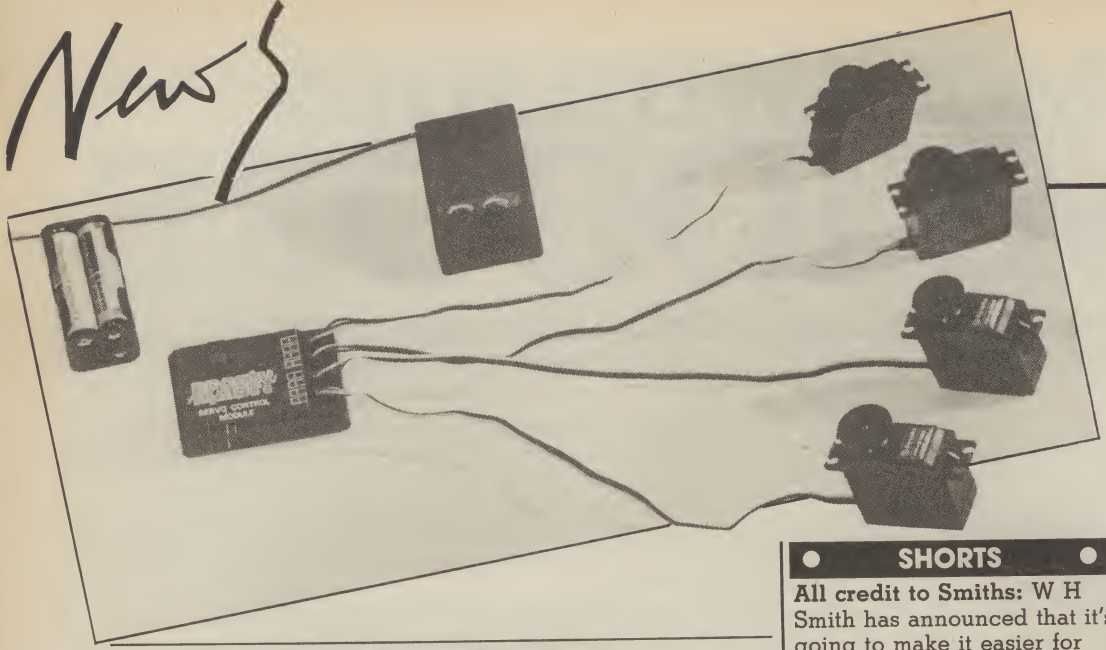
_____

Telephone _____ Signed _____

Telephone credit card sales welcome – just dial 100 (UK only) and ask the operator for FREEPHONE 2568

SHIVA PUBLISHING LTD · COMPUTE! · dilithium Press · Holt, Rinehart and Winston from HOLT SAUNDERS

News



Commodore Beasties

Robotics fans will be pleased to read that an infra red version of the Beasty control unit (previously available only for the BBC micro) is now available for the Commodore 64. It will allow you to control the Beasty Robotic Arm.

The device is an eight channel interface which its distributors, Commotion, claim to be fully compatible with both the Beasty arm and its mobile base. It can control that, or up to eight servo motors within a minimum range of six metres.

Commotion hasn't fixed prices for the infra red Beasty yet, but say it will be under £50. It also supplies servo motors from Futaba at £14.50 each for the standard model. The Beasty arm itself comes in two forms: £110 for a ready-assembled package with three servos, or £39.95 for the DIY kit. More details from Commotion on 01-804 1378.

SHORTS

All credit to Smiths: W H Smith has announced that it's going to make it easier for you to splash out on computers, peripherals and software. Its computer shops and departments are now offering credit on purchases between £400 and £2,000, ten percent of which is taken as an initial deposit. You pay back in monthly installments over one, two or three years. Maybe now you'll be able to buy that disk drive, and printer, and monitor and . . .

SHORTS

Breakaway: yet another episode in the great software house musical-chairs game. Mark Meakings, co-founder of Bubble Bus has left to set up a new company, Lionheart. Apparently, Meakings decided it was time to break away and start afresh. And what are Lionheart's aims? To produce "innovative" and "high quality" software. But that may depend on you — Lionheart is looking for talented freelance programmers.

SHORTS

Radio news: amateur radio buffs will be pleased to hear that Moray Micro Computing has announced a QTH Locator program for the 64 (£6.50 on tape, £8.50 on disk). The program calculates the distance between QTH Locator squares, a new QTH Locator square between two points whose longtitude and latitude is specified, and calculates the new six-digit QTH Locator square from the previous five-digit QRA locator. What's a QTH Locator? Better ask a Radio Ham. Moray is on 05427 384.

Fact-packed software

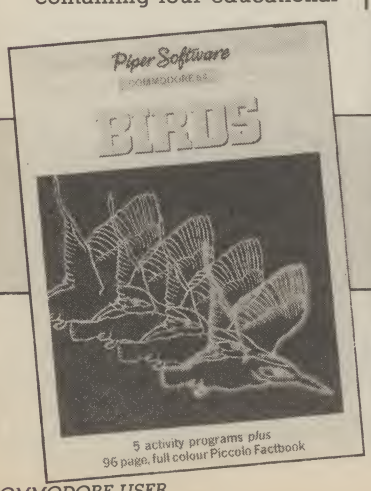
Piper Software, a subsidiary of Pan Books, has introduced a range of software for the Commodore 64 that "brings information to life as never before", according to the blurb. The subjects being given this enlivening treatment are birds, aeroplanes, dinosaurs and astronomy.

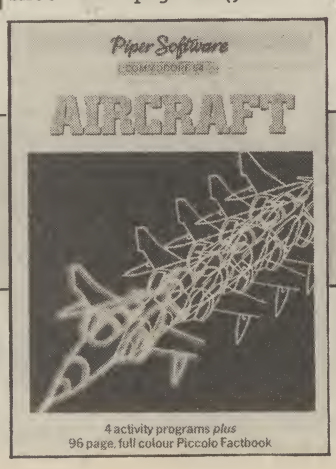
There's a Software Activity Pack for each of these subjects, designed for children aged eight or over, which includes a cassette containing four educational games, and an accompanying 96-page fact book on the particular subject (after all, Pan are book publishers). Each package in the range costs a mere £7.95.

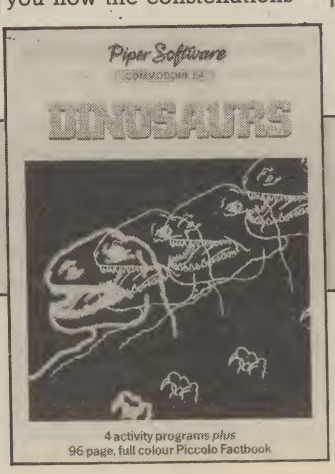
For those of you interested in aeroplanes, the Aircraft program gives you four games: a flight simulator (you get an unusual sideways view of the plane), a program to test your skills at taxiing, an enemy fighter identification program and a shoot 'em up game (you estimate range, height and bearing).

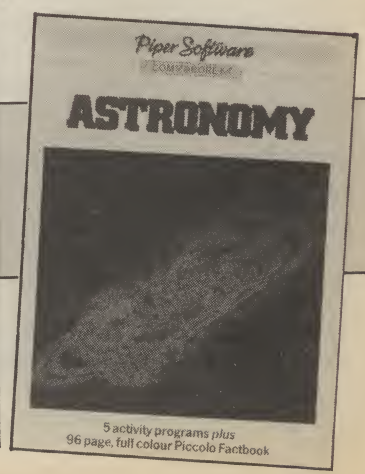
As well as the accompanying book, the Astronomy package has five games on its cassette: pilot your spaceship to discover hidden planets, answer questions to progress from Trainee to Ace Astronaut, build a databank to hold your planet information. More interestingly, there's a program to introduce you to the Constellations and a Zodiac Star Map that shows you how the constellations link together.

The Birds package also gives you five games, ranging from steering a winter migrating bird back to sunny Britain, to building a database in which to collect your bird facts. Finally, there's Dinosaurs, which follows roughly the same type of format, though one of the games sets out to let you control the evolutionary process — amazing what you can do with a 64.









ONLY
£34·95
(p&p £2·50)

THE ROTRONICS DR2301 COMPUTER/ AUDIO CASSETTE RECORDER

The Rotronics DR2301 has all the facilities you would expect of a quality audio recorder and also works perfectly with the VIC 20 and CBM 64 computers without any fiddly separate boxes or adaptors. Simply connect the DR2301 directly with your Commodore computer via the lead supplied and you are ready to start. The built-in interface circuitry ensures that SAVEing and LOADing is completely reliable – even when using commercially produced software. The DR2301 also allows the computer to sense when the PLAY key has been depressed.

Additional features are auto-stop, tape counter, in-built microphone and foldaway carrying handle. The DR2301 is also compatible with the ZX81, Spectrum and many other popular home computers.

The DR2301 will take its power from the computer (Commodore only), mains adaptor (supplied) or internal batteries. Each unit carries a full 12 month guarantee.

Superb accessories for Commodore from Rotronics

THE ROTRONICS PORTABLE CASE

Here is the ideal portable work station for home, school or work. Specially made for most home microcomputers, it contains your VIC 20 or CBM 64 within a smart executive style case with removable lid for convenience in use.

The individually tailored foam insert securely protects your micro and cassette recorder (C2N or DR2301) during transit. Additional storage space in the lid holds manuals and up to twenty cassettes. A scalpel is provided to modify the insert for expansion units and an alternative insert can be supplied if you change your hardware in the future. The case is also available with uncut foam inserts.

All components remain fully operational within the case via inter-connections routed between the double layers of foam, so there are no unsightly leads.

The case has been designed for easy use with each component positioned for convenient operation. The overall dimensions are 138mm x 725mm x 363mm.

ONLY £34·49 (p+p £2·50)

ORDER FORM

Please send (enter as appropriate)

___ Rotronics Computer/Audio Cassette Recorder(s) at £36.95 each (inc. p+p). _____

___ Rotronics Portable Case at £36.99 each (inc. p+p) for VIC 20/CBM 64* with C2N/DR2301* or Uncut Foam _____

Trade Enquiries Welcome
All prices inclusive of VAT TOTAL £ _____

☐ I enclose a cheque/PO* for £ _____ made payable to SMT

☐ Debit my Access/Barclaycard* account no.

(*delete as applicable)

Signature _____

Name _____

Address _____

CU/2/85

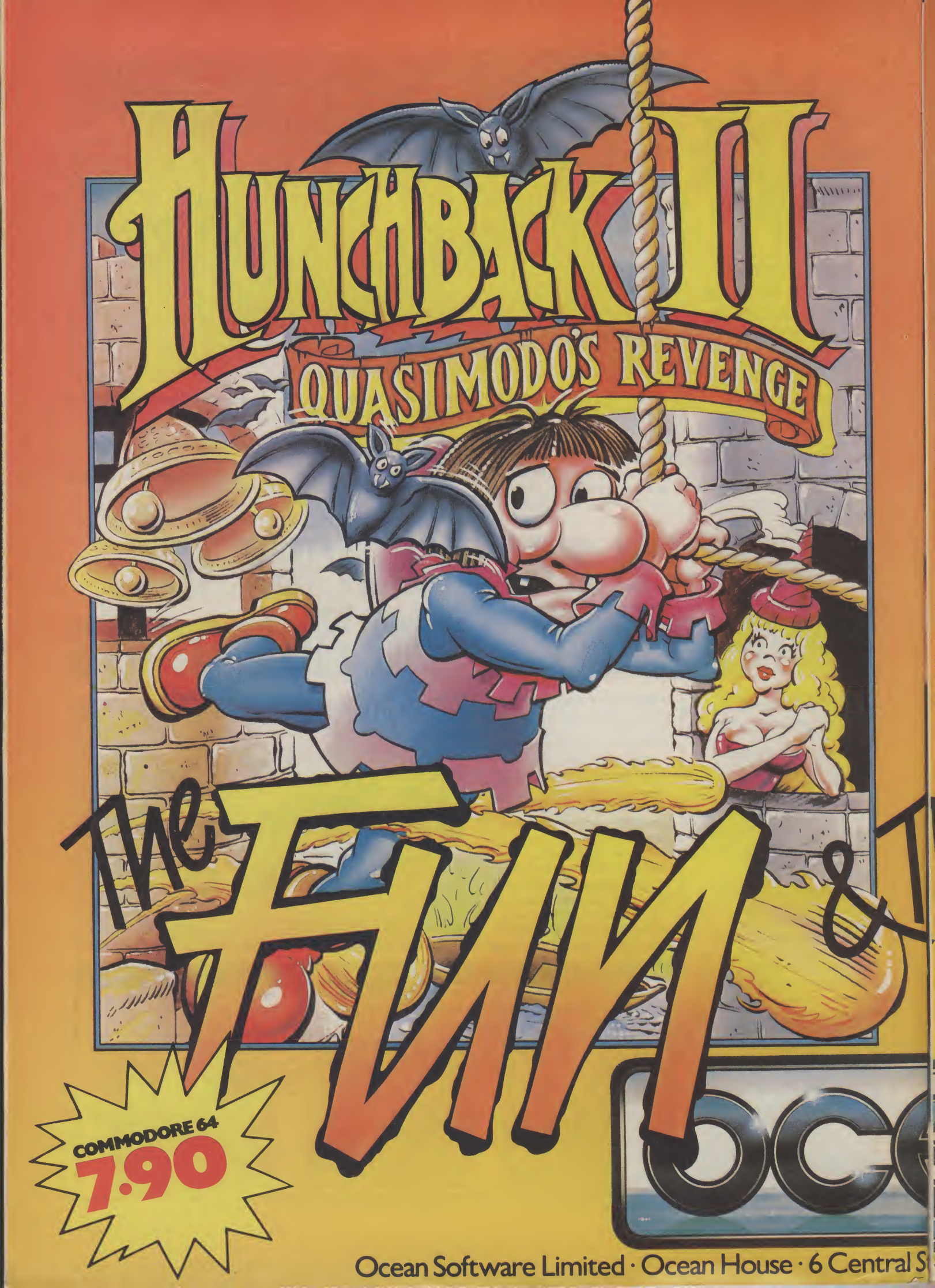
Send to (no stamp required):
SMT, FREEPOST, Greens Norton, Towcester, Northants, NN12 8BR

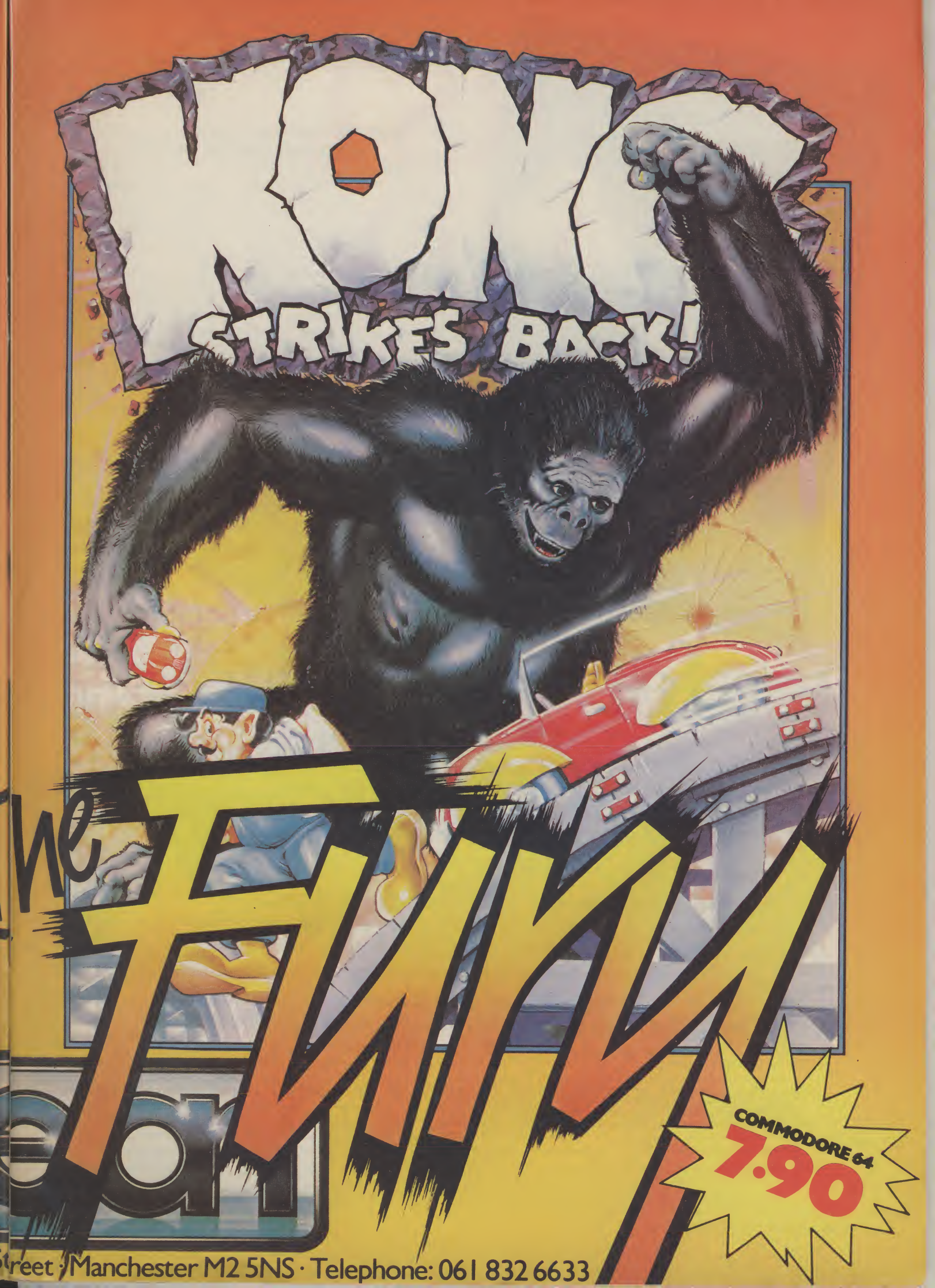
Please allow 28 days for delivery.

VISA Access

SMT

VIC 20 and CBM 64 are registered trademarks of Commodore Business Machines.


HUNCHBACK II
QUASIMODO'S REVENGE
THE FUN
COMMODORE 64
7.90
Ocean Software Limited · Ocean House · 6 Central S



reet · Manchester M2 5NS · Telephone: 061 832 6633

FIRST AID

for your 64

Computers, like people, are fallible. They need the right combination of code and care to perform effectively in the business or the home. And that requires first hand knowledge from you to create a healthy operating environment for your Commodore 64.

Knowledge about machine language, about the lesser known qualities of the 64, about the disc drives, graphics, and about the tricks and tips to keep your 64 on line. That's why First Publishing has now launched in the UK a series of high quality books and software packages to provide a complete health care kit for your 64. Commodore 64 users throughout Europe have already found it a tonic. We think you will, too.

For a brochure on all the Commodore 64 books and software packages available from First Publishing, please fill in the coupon and send to: Amanda York, First Publishing, Unit 20B, Horseshoe Road, Horseshoe Park, Pangbourne, Berkshire.

Name _____

Address _____

_____

Or ring *Amanda York* at (07357) 5244 or Calco Software at 01-546 7256 CU/2

1st FIRST PUBLISHING LTD

News

Welcome to the pleasuregame

Is there no end to Frankiemania? Not content with cornering the record, t-shirt and video market the band are preparing an assault on the software world.

Ocean Software have joined forces with Island Records and ZTT, the group's label, to produce an advanced computer game featuring the naughty scallies. It will run on both the Spectrum and the Commodore 64, with the three companies receiving the revenue and the band receiving royalties.

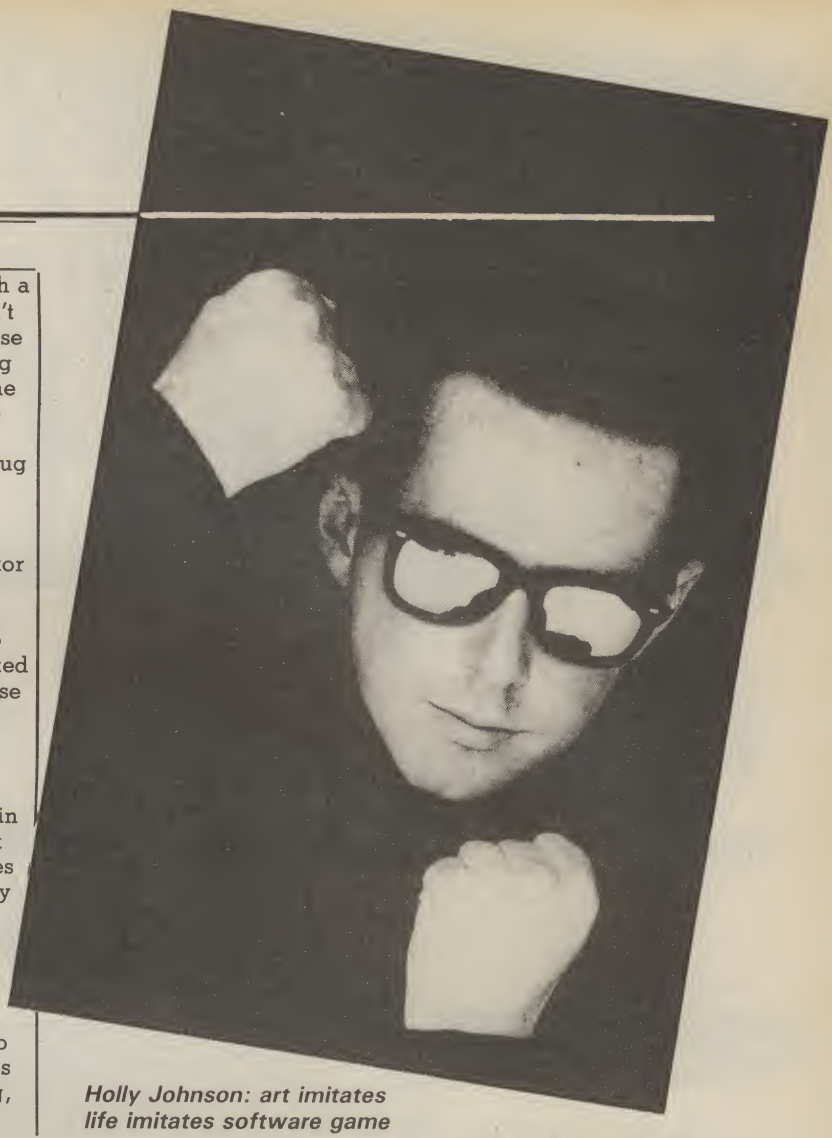
It's described as a "spectacular" in the blurb and it will follow an adventure format involving the group in various situations, though, we're assured, "it won't be dirty". Shame. The story has yet to be written but it seems that Paul Morley, ZTT impressario, will be responsible for much of the *creative* input. Laughter.

Games which link up with pop groups haven't all been entirely successful. A Shakin' Stevens single with a program on the back didn't sell very well (that of course couldn't have had anything to do with the quality of the single, though). Also, The Thompson Twins' management pulled the plug on a computer game involving the band.

These setbacks don't bother David Ward, director of Ocean. "Frankie are simply a hook to hang the game on. The game has to be good — often titles linked with stars won't sell because they rely on the name.

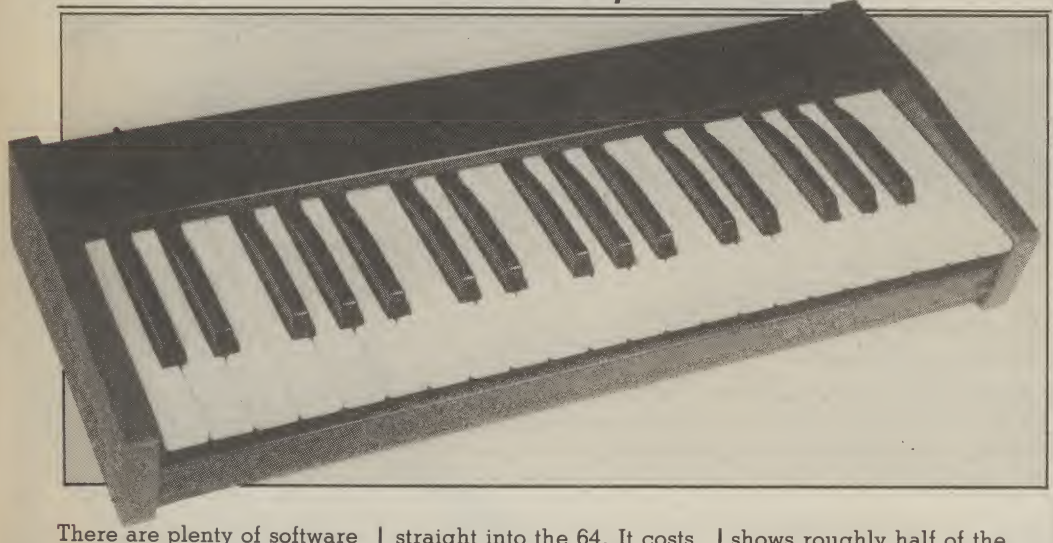
"The Frankie game will work because it can be played on different levels, like the various meanings in a book. There is a concept behind the band that makes them very interesting. They are life imitating art."

Sounds to us as if he's fallen for the ZTT hype, either that or he's been reading Paul Morley's old *NME* articles. We'll have to wait for the result of all this philosophy until the spring, when it will sell for £9.95.



Holly Johnson: art imitates life imitates software game

Real music keyboard



There are plenty of software packages available to exploit the music making potential of your Commodore 64, but most of them use the 64's keyboard as a music keyboard — and that's a bore for budding Stevie Wonders. Now, LVL, a Nottingham-based company has produced the Echo 1 keyboard complete with Organ Master software (on cassette or disk), that plugs straight into the 64. It costs £99.95.

The three-octave keyboard is sturdily built with full-size keys. It plugs into the 64's user port via a ribbon cable and adaptor socket, and needs no external power supply. Its accompanying software comprises two modes: organ and synthesiser.

When run, the program is in organ mode. Your screen shows roughly half of the 64's keyboard and the tone and effects tabs associated with each computer key. In this mode, any note played on the Echo 1 is immediately sounded. Two keys also let you select one-finger major and minor chords. There's provision for tremolo, vibrato and for lifting or lowering pitch to tune the organ to other instruments.

In synthesiser mode the screen display changes to give details of SID chip parameters like the ADSR envelope. Pressing the F1 key allows progression through triangles, synchro, ring modulation, sawtooth, pulse and noise. Sounds pretty good, and we're looking to review it in the next issue. Meanwhile, more details on 0602 394000.

SHORTS

Adventure on disk: Level 9 has announced that all six of its adventures for the Commodore 64 are now available on disk, at £9.95 each. For those of you who've already bought cassettes, the company will exchange them. Just send the cassette to Level 9 with £2.50 to cover cost, and a disk should wing its way to you. Oh, and you can get one of the company's A3 colour posters by sending them a stamped-addressed envelope. Level 9's address is: 229 Hughenden Road, High Wycombe, Bucks HP13 5PG.

Another winner in the range of Sensational Software....

AIR TRAFFIC CONTROL

This is not just a game but a simulation of everyday problems encountered by those real-life air traffic controllers.
All air travellers are unconciously dependant on the skill of these people and this program enables you to test your skills in manoeuvering aircraft safely around the air motorways and despatching them into the hands of others in neighbouring air space.

Home Computer Weekly
It is fascinating to watch, and interesting to play.
Even on level one your interest is held. Level nine is so crowded that not even a real controller could cope.
As absorbing as a flight simulator. but different!

instructions	95%
playability	100%
graphics	95%
value for money	90%

MIKRO-GEN

44 The Broadway, Bracknell, Berks. 0344 427317

DAILY Mirror

COMMODORE User

SOFTWARE Top 30

THIS WEEK	LAST WEEK	WEEKS IN CHART	TITLE	Publisher	Computer	(Available on) SPECTRUM	VIC 20	COMMODORE 64	ELECTRON	ATARI	DRAGON	ORIC	BBC	OTHER
1	2	2	**Ghostbusters**	Activision	Com 64			★						
2	1	8	**Daley Thompson's Decathlon**	Ocean	Spec	★		★						
3	—	1	**Starstrike**	Real Time	Spec	★								
4	—	1	**Elite**	Acorn	Electron				★				★	
5	—	1	**Raid Over Moscow**	U.S. Gold/Access	Com 64			★						
6	—	1	**Pyjamarama**	Micro Gen	Spec	★								
7	4	6	**Elite**	Acorn	BBC				★				★	
8	—	1	**Match Play**	Ocean	Spec	★								
9	—	1	**Booty**	Firebird	Spec	★		★						
10	14	2	**Skool Daze**	Micro Sphere	Spec	★								
11	5	9	**Daley Thompson's Decathlon**	Ocean	Com 64	★		★						
12	—	1	**Hunchback II**	Ocean	Spec	★								
13	9	6	**Chiller**	Master Tronic	Com 64			★						
14	3	3	**Knight Lore**	Ultimate	Spec	★								
15	11	3	**Select One**	Computer Records	Com 64	★		★						
16	8	14	**Beach Head**	Access/U.S. Gold	Com 64	★		★						
17	—	1	**Combat Lynx**	New Gen.	Com 64	★		★						
18	17	2	**Select One**	Computer Records	Spec	★		★						
19	—	1	**Air Wolf**	Elite	Spec	★								
20	15	6	**Beach Head**	Access/U.S. Gold	Spec	★		★						
21	—	1	**Perils of Willy**	Software Projects	Vic 20		★							
22	10	2	**Cyclone**	Vortex	Spec	★								
23	20	4	**BMX Racers**	Master Tronic	Spec	★		★						
24	—	1	**Scramble 64**	Interceptor	Com 64			★						
25	—	1	**Booty**	Firebird	Com 64	★		★						
26	28	2	**Doom's Dark Revenge**	Beyond	Spec	★								
27	—	1	**Jet Set Willy**	Software Projects	Com 64	★		★						
28	12	3	**Underwurlde**	Ultimate	Spec	★								
29	23	4	**Combat Lynx**	Durrell	Spec	★								
30	26	2	**Jet Set Willy**	Software Projects	Spec	★		★						

Top 20 Games for the 64

	TITLE	Publisher	Computer
1	**Ghostbusters**	Activision	C64
2	**Raid Over Moscow**	US Gold/Access	C64
3	**Daley Thompson's Decathlon**	Ocean	C64
4	**Chiller**	Mastertronic	C64
5	**Select One**	Computer Records	C64
6	**Beach Head**	Access/US Gold	C64
7	**Combat Lynx**	New Generation	C64
8	**Scramble 64**	Interceptor	C64
9	**Booty**	Firebird	C64
10	**Jet Set Willy**	Software Projects	C64

	TITLE	Publisher	Computer
11	**Decathlon**	Activision	C64
12	**International Soccer**	Commodore	C64
13	**Flight Path 015**	AVS	C64
14	**Eureka**	Domark	C64
15	**Monopoly**	Waddington	C64
16	**Suicide Express**	Gremlin Graphics	C64
17	**Fighter Pilot**	Digital	C64
18	**Son of Carnath**	Ultimate	C64
19	**Bruce Lee**	US Gold/Access	C64
20	**Blue Max**	Syn Soft	C64

Look out for the brand new 'Top 10' in the Saturday edition of the DAILY MIRROR EVERY FORTNIGHT.

The information for the Top 30 is compiled by N.O.P. Market Research Ltd, and founded by COMPUTER & VIDEO GAMES magazine in sponsorship with the DAILY MIRROR.

Mirage

SOFTWARE & DISTRIBUTION

9 Rossini Street
Seaforth
Liverpool
L21 4NS
Tel: 051-920 9713

PROGRAMMERS

WE ARE LOOKING FOR TOP QUALITY PROGRAMMES TO MARKET IN THE UK AND ABROAD. THE PROGRAMMES MUST BE OF TOP QUALITY AND IN MACHINE CODE WITH GOOD GRAPHICS AND SOUNDS AND ORIGINAL CONCEPT. WE ARE LOOKING FOR PROGRAMMERS TO CARRY OUT WORK ON NEW MACHINES SUCH AS THE C.B.M/16 AMSTRAD AND M.S.X. WE CAN SUPPLY THESE MACHINES TO CARRY OUT WORK FOR MIRAGE. WE ARE ALSO OFFERING £500 PRIZE FOR THE BEST PROGRAMME RECEIVED BY THE END OF FEBRUARY 1985 WHICH WE WILL DECIDE TO MARKET. WE OFFER AN OUT RIGHT PAYMENT OR 10% PLUS PAYMENT OR 20% ROYALTIES. FOR MORE INFORMATION CONTACT THE SOFTWARE MANAGER HE WILL BE GLAD TO LISTEN TO ANY QUESTIONS YOU MAY HAVE.

SOFTWARE HOUSES

WE ARE LOOKING FOR TOP SELLING PROGRAMMES TO DISTRIBUTE TO OUR WIDE RANGE OF OUTLETS THROUGHOUT THE UK AND GIVE YOU A VERY FAST SERVICE TO HELP WITH YOUR SALES AND TO MAKE THE MOST OF YOUR PRODUCTS. SEND A SAMPLE COPY OF YOUR PRODUCTS WITH RATES AND TERMS FOR A FAST ASSESMENT. FOR MORE INFORMATION CONTACT THE SALES MANAGER HE WILL BE GLAD TO HELP AND ASSIST YOU.

DEALERS AND DISTRIBUTERS

DEALERS WE HAVE THE BEST SELLERS FROM THE BEST PRODUCERS; WE ALSO OFFER VERY GOOD RATES AND TERMS TO HELP YOU AND US TO ACHIEVE THE BEST SALES AND SERVICE. FOR MORE INFORMATION CONTACT THE SALES MANAGER.

DISTRIBUTERS HAVE YOU GOT THE MIRAGE RANGE ON YOUR SHELVES, IF NOT THEN CONTACT THE SALES OFFICE FOR SAMPLES AND RATES.

SALES MANAGER
T.C. SAPHIER

SOFTWARE MANAGER
C.A. SAPHIER

Choosing a printer is a lot easier than choosing a computer.

THERE are dozens of quality printers from which to choose. With quality price tags of around £250.

The Brother M-1009, however, breaks all the rules.

Stays defiantly below the £200 barrier.

Though it has far more than its fair share of features, it maintains the extraordinarily low price of £199.95.

Travels at a steady fifty.

In the speed stakes, the M-1009 is certainly no slouch, being fully capable of up to 50 characters per second.

Providing bi-directional and logic seeking printing for normal characters and uni-directional printing for super and sub script and graphics.

Prints on any paper.

Being an impact printer, the M-1009 will print on virtually any paper, including letter headings, invoices and standard office stationery.

It will even print two copies together with your original.

A superb character recommendation.

In its price range, the M-1009 has a great deal more character than many printers.

96 no less, plus international type and graphic characters.

Reliability comes as standard.

Built to the same exacting standards as Brother's elite office printers, the Brother M-1009 already has faultless credentials for reliability.

Its 9 pin dot matrix head, for example, has an astonishing 20 million character service life.

One printer that doesn't block out the light.

Many home computers tend to be a little on the large side.

In contrast, the compact M-1009, at only 7 cm high, keeps a discreet profile.

Well designed, reliable – and conscientious.

The Brother M-1009.

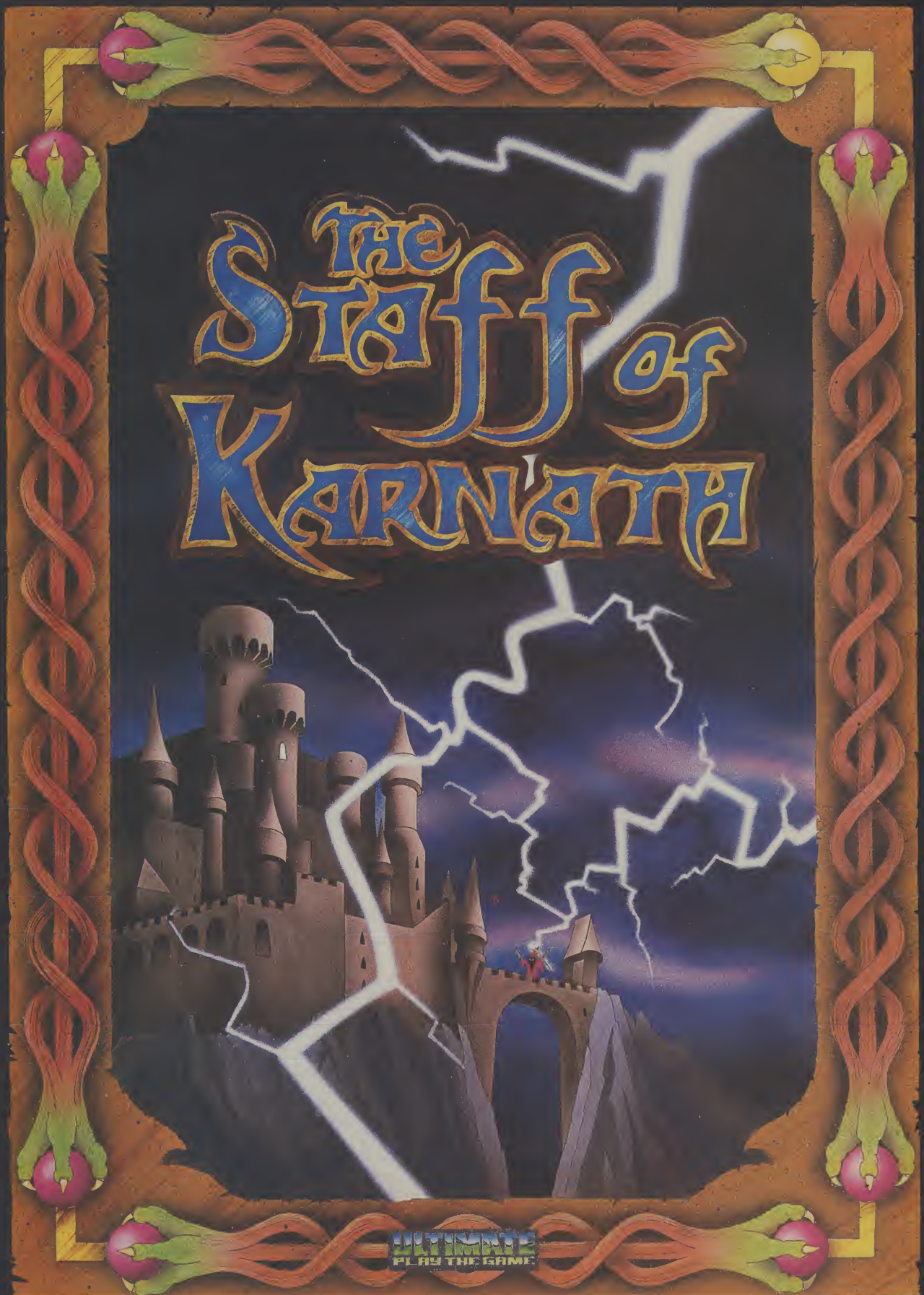
brother®

The future at your fingertips.

DEPT P, BROTHER OFFICE EQUIPMENT DIVISION, JONES + BROTHER, SHEPLEY STREET, GUIDE BRIDGE, AUDENSHAW, MANCHESTER M34 5JD.
TEL: 061-330 6531 (10 LINES) 061-330 0111 (6 LINES) 061-330 3036 (4 LINES) TELEX: 669092 BROTHER INDUSTRIES LIMITED, NAGOYA, JAPAN.

AVAILABLE FROM
BOOTS, WILDINGS, SPECTRUM, JOHN MENZIES, MICRO MANAGEMENT, MAJOR DEPARTMENT STORES AND ALL GOOD COMPUTER SHOPS.

COMMODORE 64 (Joystick Compatible)



"THE STAFF OF KARNATH" recommended retail price £9.95 inc VAT
Available from W.H.SMITHS, BOOTS, J.MENZIES, WOOLWORTHS
and all good software retail outlets. Also available from
ULTIMATE PLAY THE GAME, The Green, Ashby-de-la-Zouch, Leicestershire LE6 5JU
(P&P included) Tel: 0530 411485

by Robert Schifreen

With Compunet and Micronet now accessible to the Commodore 64, we bring you a new regular column. Each month, The Happy Hacker looks at what's new in Compunet, Micronet and communications networks in general.

Got something to tell us? Why not drop us a line to: *Commodore User*, Priory Court, 30-32 Farringdon Lane, London EC1 3AU — or on Prestel page number *6001880.

SYSTEM SNIPPETS

Good news for Compuneteers fed up with the speed of the system. Compunet are working on some time-saving enhancements and, I'm assured, the system will be working up to three times faster in the near future.

Scrolling software for use with the Compunet modem will soon be available. If you've used Prestel you'll know that, after displaying a page, the screen clears and the next one starts from the top of the screen again.

Scrolling means that any text simply moves up the screen, just like a piece of paper in a typewriter.

The software is already complete and, when the documentation is finished, you'll be able to download it just like Viewdata and Terminal — the programs which allow you to access Prestel.

With this extra scrolling facility, you can use a Compunet modem as a terminal to other mainframes, and can log in to PSS. This is BT's data network, with access to many other computers. Details from your local BT sales office. Be warned, though, if my experience is anything to go by, they probably won't know what you're talking about.

MUD SLINGING

A trigger product, in the case of a network, is a facility which, on its own, is grounds enough to make you subscribe. **Homelink**, for example, is a homebanking service. The average Homelink subscriber joins Prestel simply because Homelink is not available anywhere else.

MUD, a cult game among many micro owners, is set to be Compunet's trigger product. It's an adventure game, running in real time, which can support around twenty users at once. Each person logs in via a micro and a modem.

The rights to MUD were recently sold by its author Richard Bartle to Century Communications and the game has been made available on Compunet.

The present version is written for a DEC10 minicomputer, and a link is provided between Compunet and the DEC machine.

The only problem for the average user must be the cost. At £5 a month plus £3 per hour, playing MUD on Compunet isn't a cheap way of having fun.

If you're thinking of joining Compunet mainly to play the game, you might do better to think of joining PSS. You pay £25 initially, then £6.25 per quarter. Armed with your PSS identity number, you can gain cheap access to Essex University, where MUD is currently running for free.

Ironically, there's also a version running on a DEC10 in Oslo, Norway. No one knows how they managed to get hold of a copy of the program, but, through PSS, you can actually play MUD in Oslo. And it can still be cheaper than going through Compunet!

COMMODORE MICROBASE

The Commodore area on Micronet starts on **page 800200**, and caters exclusively for the 64. The database was opened to coincide with the launch of the 64 modem — too soon according to some people. The main areas at the time of writing are:

- *features* (page 800203):- articles about using the 64. A good introduction to using the SID sound chip. Also, a rather sarcastic look at Simons' Basic.
- *hardware* (800205):- looks at Commodore-compatible peripherals. There's one section for equipment that has been tested and reviewed by Micronet, and one for any that hasn't.
- *ICPUG* (800201):- the Independent Commodore Products User Group has its own pages on Micronet. If you can't find what you want here, try Clubspot on page 810.
- *telesoftware* (600617):- for the 64 is rather scarce at the moment. There are a few games for downloading, including a range from Supersoft and Ocean. Although cheaper than in the shops, they're rather outdated.

Micromouse is rapidly becoming one of the most widely read areas of Micronet. Run by a database addict, many of his news stories come straight from the American networks and make an interesting read. A good place to find out what else you can do with a micro and a phone apart from using Compunet and Prestel. Most of it's legal, though some stories should carry a BT health warning!

Compunet has retaliated with CompuCat, which is set to develop a similar following.

HOW SAFE IS SAFE?

You can't have missed recent TV and newspaper reports of various lapses in Prestel security. Someone even managed to find the ID number and password of the system manager, which gave access to any area on the database and any user's password.

Last month, Timefame International, one of the most widely read information providers on Prestel, claimed that its ID was 'hacked' just hours after the ID was changed. Why was it changed, you ask? Because of the hack the week before!

Prestel claimed that they had evidence which proved that this second break-in did not occur, and asked Timefame to withdraw their comments. They refused, and Prestel "terminated its agreement" with Timefame and removed their facility to use Prestel. At the time of writing, the Timefame database does not exist. If it does not reappear, many people will start asking whether Prestel did actually have something to hide.

If you use any system, change your passwords at least once every two weeks. In the case of Compunet, make sure that no one ever sees you entering your password or user ID.

New for

COMMODORE 64/VC-1541

QUICKCOPY V2.0

The Fastest Disk Copy program for the C-64

2 Drives	1 Drive:
2.5 Min.	3.5 Min.

for a copy of a completely filled disk (683 blocks) including formatting

In most cases it is even much faster!

E.g. 'TEST/DEMO' disk including formatting:
2 drives: **39** seconds 1 drive: **50** seconds

- ***No hardware modification***
- ***100% reliable***
- ***Works with one and two drives***
- ***Copies all filetypes***
- ***Comfortable disk error handling***

Disk only £15.95 (add 50p postage and packing)

Send cheque or PO to:

INTEGRATED SYSTEMS LTD

Postfach 130, CH–6330 Cham
Switzerland, Tel: (01041 42) 36 55 33.

Trade enquiries welcome

★★ MOONRAKER ★★

★ *NEW ARCADE GAME FOR* ★
THE COMMODORE 64, PLUS JOYSTICK

Test your skills – are you the BEST or one of the rest?
Enter codename into the **Moonraker** Patrol Log and FLY your sub-orbital craft around the planetoid Geevor into a 3D fly-into space scenario over an extensive lunar-type landscape.

DEFY the 'Fireball', DEFEAT the Scavengers, and GAIN PROMOTION through the ranks of the ELITE MOONRAKER Patrol.

★★ MOONRAKER – FANTASTIC VALUE at £6.95 ★★

also for the Commodore 64

★ SPRI-TECH ★
@ £5.95 ★

Have fun making sprites in MONO or MULTICOLOUR LOAD, SAVE, REVERSE, INVERT, NUDGE – it's so easy – aids animation!

*** GADGET 64 ***
@ £5.50 *

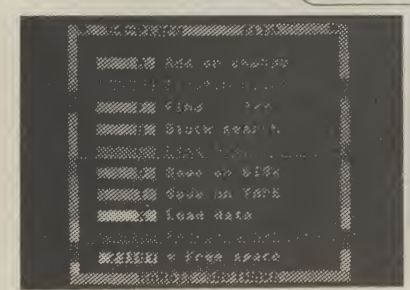
Writing your own programs? RENUMBER INC: GOTO'S APPEND + DELETE. A MICRO TOOLKIT. THE CHEAPEST LITTLE RENUMBER IN TOWN.

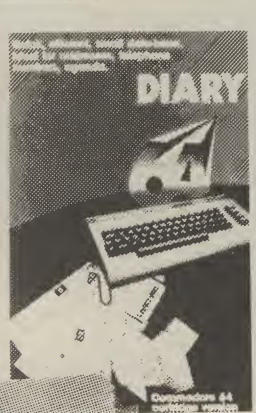
*** All items in stock-cassette only prompt delivery-satisfaction guaranteed P&P Free.

Order Now, send your Name, Address & Order Title, enclose P/O or Cheque for full amount and post to:

J&J Gilmour Ltd, Dept CU185,
4 Copse Close, Liss, Hampshire GU33 7EW, England

handic software





The perfect first program

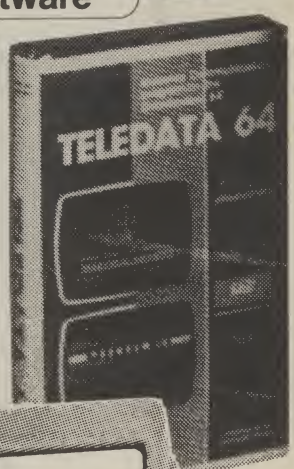
The DIARY 64 program lets you start at once because it's so simple. The program is on cartridge – so it is quick and easy to load. Data can be stored on cassette or disk.

Keeping track of phone numbers, appointments, birthdays and schedules has always been a problem – now you can let DIARY 64 help you remember. The CBM 64 becomes your time-manager, you can print address labels – for Christmas cards etc. DIARY works like a big notebook with its pages appearing on screen. Using the search function you can let the CBM 64 find that address or appointment that you need.

34.49 Inc. VAT

TELEDATA 64

handic software



(Videotex communication)

Do your shopping, get the latest news, with your CBM 64! –Communicate with data bases, the bank, the grocer over the phone lines! The fast growing number of data bases – mail order, banks etc. – using Videotex can provide you with all kinds of information and services; weather, stock exchange information etc. You can be there NOW! Having access to information means great opportunities – buy and reserve tickets, buy computer programs and have them transferred to your computer via the modem, have access to sales lists for houses, cars etc. THE MEDIA OF THE FUTURE PRESENTED TODAY by HANDIC SOFTWARE.

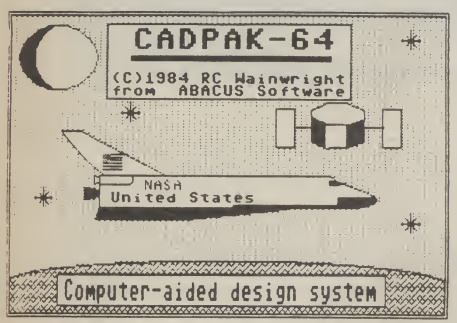
29.95 Inc. VAT

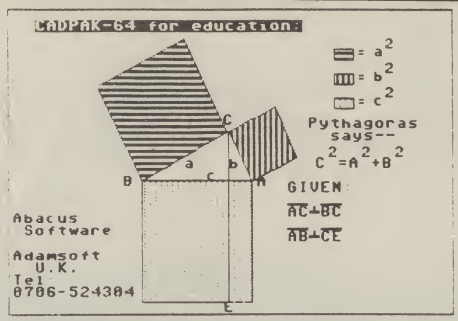
A SUPERB DESIGN TOOL

CADPACK-64 is a superb tool for computer-aided designs and drawings. Graphics Drawings are done directly onto the high resolution screen using a light pen.

CADPACK-64 can create and edit graphics pictures, drawings, layouts, and renderings – quickly, accurately and artistically. The output is suitable for reproduction as hardcopy printout or photographs.

CADPACK-64 ia a snap to use! The main menu lets you choose from a full list of options simply by selecting one with the light pen. Your interaction with the keyboard is minimal.





CADPACK-64 gives you two full high resolution screens. You can draw with any combination of LINEs, BOXes, CIRCLEs and ELLIPSEs; FILL using patterns or solid colours; free hand DRAW; COPY sections of the screen to other sections of the screen. You can choose point placement down to the pixel level by using the floating vernier. The ZOOM feature lets you do detailed design within a small section of the screen.

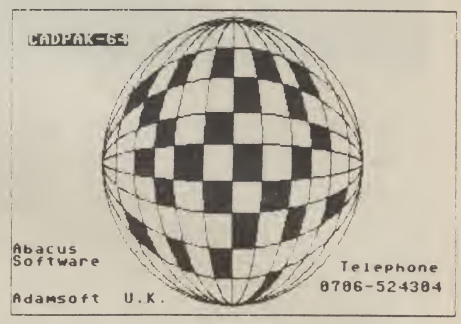
CADPACK-64 runs on a Commodore 64 with 1541 disk drive and requires a high quality light pen. A printer is optional.

CADPACK-64 makes design work with a Commodore 64 so very easy. We challenge you to try one of the most useful design tools available at any price for a home computer.

CADPACK-64 w/comprehensive manual on DISK £35.00

CADPAK-64 is now available complete with lightpen at £49.95

CADPACK-64 has a powerful OBJECT EDITOR which lets you define the shape of OBJECTs such as furniture, electronic circuitry or machinery. These definitions can be as intricate as the resolution of the screen permits. You can name these OBJECTs, build a library of them on disk, and then recall and display them on the screen at varying SCALEings or ROTATIONs. When your designs are complete, you can SAVE/RECALL finished screens to/from the disk. Finally you can reproduce the results to one of popular dot matrix printers: Commodore 1525E, MPS-801, Epson MX, RX or FX series, Okidata C, Itoh Prowriter, Star Gemini.



Send sae for full catalogue
Dealer enquiries welcome – No surcharge on overseas orders

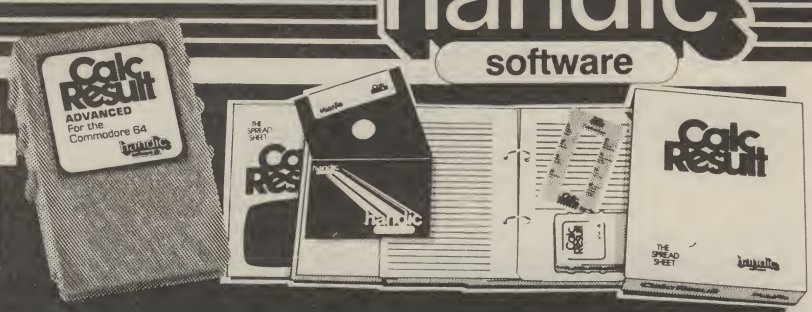
Transcash payments to a/c no: 687944007

Abacus Software

ADAMSOFT
UK Distributer
18 NORWICH AVENUE. ROCHDALE. LANCS. OL11 5JZ
TEL 0706 524304

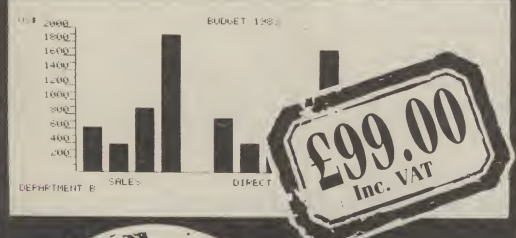
Calc Result

handic software



The Financial Spread Sheet for the COMMODORE 64

A disk and cartridge based program which will answer all your financial and number crunching questions



£99.00 Inc. VAT

14 DAY MONEY BACK GUARANTEE

handic

THIS COUPON IS WORTH AN EXTRA 10%

PLEASE RUSH ME:–

CALC RESULT Advanced	99.00 ☐	SUPERBOX 64	67.87 ☐
CALC RESULT Easy	49.95 ☐	RS232	34.49 ☐
REL 64	34.95 ☐	TELEDATA 64	29.95 ☐

I enclose cheque/Postal Order for £ _____

Charge my ☐ Access ☐ Visa ☐ American Express

Card No. _____

Signature _____ Date _____

NAME _____

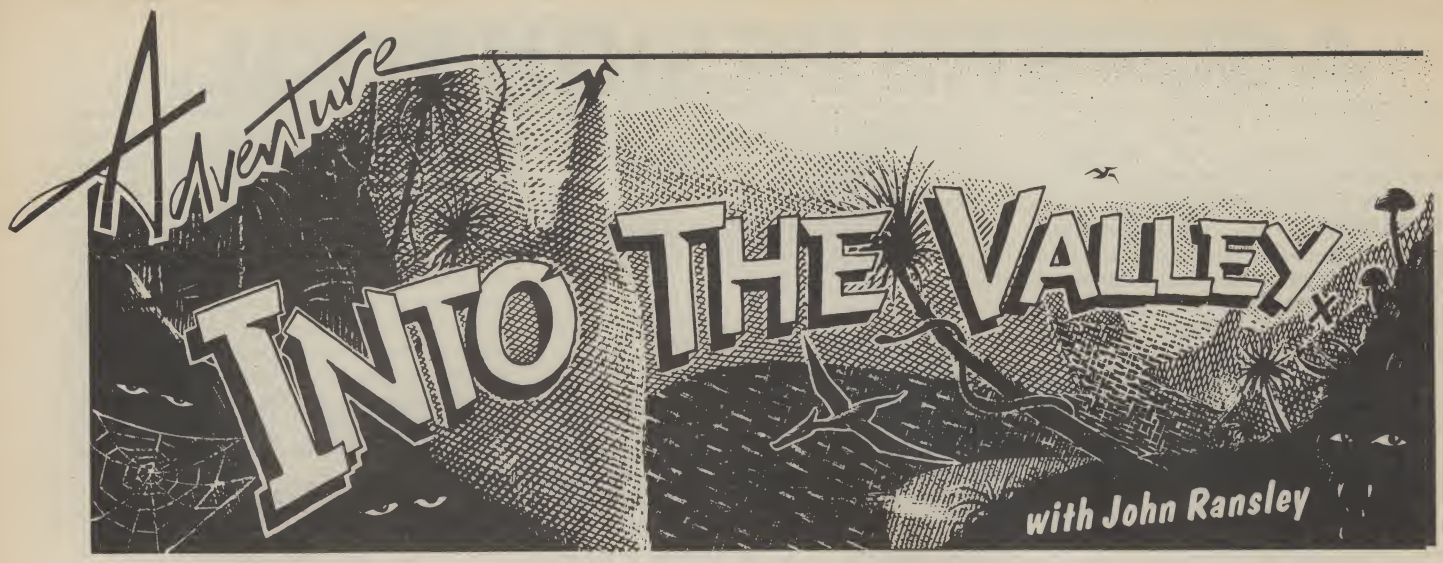
ADDRESS _____

COM. US. 1/85

ALL PRICES INCLUDE VAT

Or **CALL US ON 0344 778800 TO PLACE YOUR ORDER TODAY**

Handic Software Ltd., 5, Albert Road, Crowthorne, Berks. RG11 7LT



John Ransley has ignored (temporarily of course) the sackful of latest and greatest adventures we've hurled at him this month. Why? Because he's going about writing his own brain-twister, confident that, with the right tools, anyone can do (almost) as well as the near-mythical professionals. But how do you think up the ideas and plan them, how do you write the program, design the graphics, speed up the action and smooth out the rough edges? Read on . . .

If you spent a goodly chunk of the Christmas and New Year break exploring one or two new adventures you've borrowed or bought, the chances are that you'll have been just a little disappointed with some aspects of at least one of them. And it's equally likely that you'll have said to yourself, 'I can do better than that'.

Sure you can. Yet you probably imagine that, whether you're attracted by the idea of creating a text, graphic or animated adventure, there are two big obstacles in the way of you ever coming close to the success of Scott Adams, Pete Austin or Philip Mitchell; that you lack their creativity and originality, and that you could never mimic their programming skills. Well, balrogs to all that.

Get the idea . . .

First, remember that all three of those luminaries have openly borrowed from the ideas of popular authors — Mitchell from Conan Doyle and Tolkein; Adams from Robert Louis Stevenson and Bram Stoker; and Pete Austin from H G Wells. No reason why you shouldn't do the same. In the software swamp, where naff adventures lurk like pantomime crocodiles to good-naturedly swallow your wallet, it's not surprising that people respond more readily to the familiar. In general, you don't risk infringing copyright in the case of the original works of any author whose death occurred more than 50 years ago.

There are exceptions (such as in the case of contemporary editions of foreign-language works, where fresh copyright will be vested in the translator), but the software house interested in acquiring your game will check out this situation anyway. Besides, there's still no reason why you can't base an adventure or any other game on a contemporary work (*viz* **Ghostbusters, Erik the Viking, Danger Mouse**) provided you accept that the copyright holder must be paid a percentage of the sales. But as a 'name' will help to move more copies off the shelf anyway, your overall income is unlikely to be diminished — probably the opposite.

A stroll round your local library, bookshops and secondhand book dealers will provide you with more than enough inspiration for your own adventure. There are literary treasures all over the place just waiting to be discovered; hitting on John Masefield's forgotten children's classic *The Box of Delights* must have been the answer to a prayer by a TV producer looking for a serial to please youngsters raised on Dr Who, E.T. and Dungeons and Dragons.

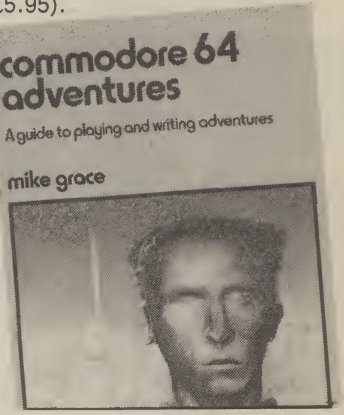
There still remains the task of programming your adventure and then presenting it in a form that's professionally acceptable. Here, you can count yourself lucky. Crowther and Woods and the other pioneers of adventure authorship had to start from scratch — but with just one or two well-considered purchases, you can learn and apply everything they've ever known.

Learning from books

I'm assuming that you have a pretty good grasp of Commodore Basic and aren't looking for books which teach the absolute fundamentals of topics such as string handling. But you will want to learn the ABCs of how to create an adventure and plan that all-important map on paper and then translate that into an attractive (and hopefully even marketable) program.

Then as you've passed the beginner stage, you'll want an insight into the more sophisticated techniques for achieving full-sentence input, independent action, graphics and animated interludes, and so on.

To get you on the right road, you can choose from Keith Campbell's **Book of Adventure** (Melbourne House, 138pp, £5.95), **Write Your Own Adventure Programs** (Usborne, 48pp, £1.99) and **Commodore 64 Adventures** by Mike Grace (Sunshine Books, 214pp, £5.95).



A friendly and chatty approach to the task is taken by Keith Campbell — and I'd better be careful what I say because not only is he the doyen of British adventure columnists (he's been writing our sister mag, *Computer & Video Games*, since the days when Babbage was the tea boy there). He's also about nine feet tall.

If you admit to even less confidence about tackling adventure authorship than I did at first, then Keith's book is definitely the one for you. It unravels the mysteries of the conventional adventure programming in bite-sized chunks and puts them to work in a compact mystery (there's a full listing for the 64) that

nevertheless incorporates all the techniques explained in the earlier chapters. Not being machine-specific, the book inevitably falls down in some respects (it lacks, for example, anything like Mike Grace's routines to SAVE an adventure at any point), but otherwise there's little to fault it.

In Mike Grace's effort, all the tricks the beginner needs are very clearly explained with the help of sample modules which quickly build into a simple demo adventure. This is the springboard for a much more ambitious program which, again, is presented in modules that are amply explained along the way.

I have to admit to a certain bias in favour of this particular title because it was the one that nursed me through my first steps in adventure writing, and I've not found anything since that surpasses it in terms of clarity. Mike Grace's enthusiasm for his subject is infectious (so often, computer books read as though their authors are bored stiff by it all); his cheerful tuition really makes you want to start tapping away at the keyboard straight away.

And more books . . .

I'm a great fan of Usborne's colourful and heavily-illustrated books and have already bought a number of their computer guides, even though I suppose they're meant for a younger readership. Don't care who's watching — I like the pictures. **Write Your Own Adventure Programs** by Jenny Tyler and Les Howarth could sell at twice the price and still be great value. Usborne's graphic house style is put to excellent use in conveying concepts such as object arrays in a visually appealing way; the map and grids for the demo adventure, for example, are little masterpieces. The main listing is in a universal Basic, with special machine-specific lines where necessary. These even include the sound effects; and any book that can confidently present, as this one does, SFX for a ghost falling out of a tree — and on a Vic 20 at that — just has to merit shelf space. Incidentally, certain POKES apart, you'd be able to implement all the Vic/64-specific routines and programs in these three books on the C16 and Plus/4 with only minor changes.

Other titles you should take a look at before making your final choice are **Creating Adventure Programs On Your Computer** by Andrew Nelson (Interface, £4.95) and Peter Gerrard's **Exploring Adventures on the Commodore 64** (Duckworth, 328pp, £6.95).

Battling with Basic

So now you've worked out your storyline and map (perhaps with the help of Print 'n' Plotter's useful **Adventure Planner**, (£4.50), and it's time to labour at the keyboard. And as we all know, Basic 2.0 makes it more of a labour than it need be. Fortunately, there are no end of machine utilities which will help you overcome the most disagreeable aspects of Commodore Basic, which I've always suspected was written by an Esperanto tutor with a hangover.

The facilities offered vary enormously — from simple disk-handling and input validation on Commodore's own **Programmer's Utilities** (£14.99, disk only) to the excellent **BC Basic** cartridge bursting with nearly 100 extensions to make life really easy (Kuma, £57.50). Others worth evaluating include **The Tool** (Audiogenic, £14.95), **Help** (Stack, £25), **Gas Kit 64** (Anirog, £14.95), **Video Basic 64** (Adamsoft, £42), **Basic Plus** (J Morrison Micros, £7.95) and **Power 64** (Kobra, £75).

Many of these include simple commands for generating very sophisticated and hi-res screens of the kind that make Twin Kingdom Valley or Eureka! so watchable. Alternatively, you can buy programs which are for the sole purpose of transforming those 64,000 pixels into something like Dali might have painted for De Mille.

Getting the graphics right

Be very careful what you buy in the case of graphics utilities. Some will only allow the designs they've been used to create to be screened if the utility itself is in memory. What you're looking for, of course, are programs which help you to create nice pictures which can then be incorporated in your own Basic programs. So far, I've discovered and tested three which meet this criterion.

The cheapest is (don't laugh) **Tony Hart's Art Master** (Commodore, £9.99/£11.99 disk) which comes together with four demo pictures to see what can be done. The program was actually written by David Byrden but I have enough regard for Mr Hart to believe that he wouldn't lend his name to anything tacky — and he hasn't. What you get is

a full-feature package that isn't particularly user-friendly but which will soon have you knocking out video art that would have taken you ages to produce otherwise. The instruction leaflet is average to excellent, and includes a simple routine for using the pictures — even as a games background for animated sprites — in your own programs. Jolly good.

Also available on tape is **Panorama (H)** by Andrew Colin (Talent Computer Systems, £17.95/£19.95 disk). With a 36-page instruction booklet packed with words and diagrams, it all seems rather daunting at first — but after a few hours of working through the examples and experimenting for yourself, you should begin to get some real value out of this very professional product. It has every feature you could possibly want and a few you've probably never thought of.

I'd be hard-pressed to choose between this and **Doodle!** (Quicksilva, £14.95 disk only) which is a little less sophisticated in some respects but offers much in other ways. For a start, it gets so friendly, it'll start the neighbours gossiping. For example, when you're working on a picture you can instantly toggle between all the menu and instruction pages to make sure you're going to hit the right button next. You can tuck a duplicate design away in memory so that if you spoil a picture with your next embellishment, you can call back the earlier version straight away.

Graphics with tablets

With these three, you guide the cursor around the screen with the keys or joystick. Two other products which permit the generation of 'stand alone' pictures, but which I've not tried, use a stylus — which makes it much easier to copy from an original by simply 'tracing' over it. One is the pricey but, from all reports, virtually faultless **Koala Pad** (Audiogenic, £79.95), which now has the benefit of improved 64 software. The other is the marginally more affordable **Super Sketch** (Stonechip Electronics, £59.95), which appears to offer the advantage of a drawing board significantly larger than Koala's dinky 4 in. square pad.

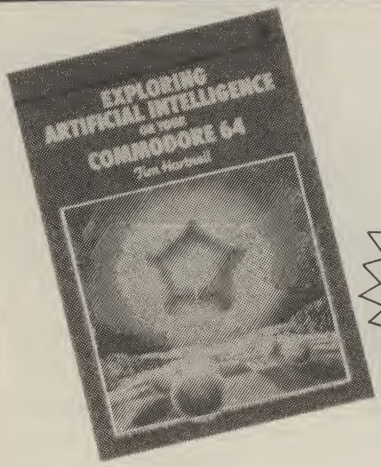
One thing to remember above all is that all five of these products offer the facility of storing usually not more than one complete screen in memory at a time. So for tape adventures, their use is really limited to the creation of a knockout title screen for a text adventure. But if you're thinking in terms of disk, then of course you can cut the tracks with quite a number of pictures (though remember that they'll each occupy anything from 8K to double that), and call them up as needed.

Compile and run

Come the dawn, and eventually you find that you've written your very first adventure. Trouble is, not only do all those IF...THENs and ON...GOTOs slow input responses to the speed of the average British Rail buffet car attendant, but all those florid text screens and natty graphics have left you just short of enough memory to hold the dynamic variables. Well, you should have written it in machine code, shouldn't you? Except that by the time you've done that, it'll be your successors who get your royalties and not you.

So buy a compiler and you'll find yourself in a new world. They're ridiculously easy to use and the results are invariably astounding. Just load the compiler into your 64, touch a couple of keys, load your original Basic program, and then wait for the compiler to do the rest. After a few minutes, you'll have a compiled version which you can SAVE

MAKE THE MOST OF YOUR COMPUTER.



NEW!

- ☐ Exploring Artificial Intelligence on your COMMODORE 64 — Tim Hartnell. £6.95
- ☐ Mastering Machine Code on your Commodore 64 — Mark Greenshields. £7.95
- ☐ Mastering the Commodore 64 — Mark Greenshields. £7.95
- ☐ Challenging Games for the Commodore 64 — William A Roberts. £3.95
- ☐ Putting your Commodore 64 to Work (15 programs, including a complete word processor) — Chris Callender. £4.95
- ☐ Putting your VIC 20 to Work — Tom Lau. £4.95
- ☐ 50 Outstanding Programs for the VIC 20 — Tim Hartnell. £6.95
- ☐ Delving Deeper into your VIC 20 — Philip Campbell. £4.95
- ☐ Dynamic Games for your VIC 20 — Mathew Boek. £4.95
- ☐ Creating Adventure Programs on your Computer — Andrew Nelson. £4.95
- ☐ The Art of Structured Programming — Peter Juliff. £5.95
- ☐ The Easy Way to Program your New Computer — Tim Hartnell. £3.95
- ☐ Getting Acquainted with your VIC 20 — Tim Hartnell. £6.95
- ☐ How to Program the Commodore 64 — Robert Young. £5.95

These books are available from most book and computer stores. In case of difficulty, order directly from us.

Interface Publications, Dept. QC
9-11 Kensington High Street, London W8 5NP.

Please send me the indicated books. I enclose £ _____

Name _____

Address _____

_____

_____

Interface Publications Ltd

Interface

(TRADE ONLY: Interface Publications are distributed exclusively in the UK and Eire by W H S Distributors. Export trade handled by Interface Publications.)

Adventure

separately and which you or anyone else can RUN without the compiler itself in memory.

I've been using the disk version of **DTL-64 Jetpack** (Dataview-Wordcraft, £39.95) for some time now and I can't praise it enough. It's beautifully simple to use and I still find quite magical its power to effortlessly convert any of my Basic programs — however stodgy, inelegant and unstructured — into a sleek beast that's fast-loading, fast-running and memory-saving.

For example, a Basic subroutine for copying the ROM character set into protected RAM, creating several UDCs and flipping up a screen design incorporating them took 41 seconds to execute.

The DTL version takes nine seconds. DTL boiled down a sprite editor I wrote by more than 2.2K and doubled its speed of execution. And a compiled 32K text adventure not only slimmed down to just over 27K but gave a speed of response that made the game a pleasure and not a pain to play. Also, loading time from disk was cut by nearly a quarter to 75 seconds; tape loading would show a proportional improvement.

Incidentally, I could have tightened up even on these figures if I'd taken the trouble to add just one line to the original declaring which variables (virtually all of them, actually) could be treated as integers.

Bear in mind that such improvements will apply also to the speed at which hi-res pictures are drawn, at which sprites move (so you can incorporate some real arcade action), and so on.

Another, almost advantage, is that you can write the original Basic program with only one statement per line and with stacks of REMs — so that it's easier to understand (especially months later). This is because the compiler ignores all such window dressing and so they won't use up memory or slow execution.

I don't think you'd be getting anything more for the money if you plumped instead for **Petspeed** (£49.95) and the documentation's pretty pale anyway. But **Speedwriter** at around £40 from Codewriter and Stack's new **CBM 64 Compiler** at only £9.95 on disk must obviously be worth checking out.

Dedicated to adventure

Then there's always **The Quill**. The capabilities of this innovative software will surely be familiar to you (if not, re-read Roger Jones' thorough appraisal in our December '84 issue). Codewriter's **Adventure Writer** comes from the same family. Gilsoft have developed an extension for The Quill which allows for the creation of graphic examples; let's hope there'll be a version for the Commodore family soon. Incidentally, don't let this news delay you from buying The Quill now; the graphics feature will be an add-on and won't replace the existing product.

If your funds don't quite stretch to a compiler, you can at least do something to put some zip into LOADs and SAVEs, by processing your self-written programs (whether they be in Basic or machine code) through a utility which will convert it into a fast-loader. **Fastback** (Micro Centres, £9.95), **Hypersave** (Dosoft, £7.50) and **Zippo** (J Morrison Micros, £3.95) all do this with lesser or greater degrees of simplicity. A bonus is that programs so treated can't be listed or copied.

Finally, a word about the use of compilers such as Jetpack or The Quill. Neither you nor any software house which publishes a program created with their help will be infringing any copyright. It's good manners to acknowledge the use of the utilities in the finished program's credit screen or accompanying documentation (as does Hampstead, for example, which was written on The Quill). Otherwise, people like Gilsoft and Dataview-Wordcraft don't expect a penny from you.

Which is pretty decent of them really, when you consider that their prodcts can transform your efforts into something which the likes of Adventure International, Level 9 or Melbourne House could make into a hit. Now, where did I decide to hide the clockwork goldfish . . ?

INTERPOD

Now the VIC 20 and 64 can communicate with PET peripherals

VIC and 64 users

Would you like to be able to access **any** of these peripherals from your computer?

- 1/3 megabyte disks (Commodore 4040 drive)
- 1 megabyte disks (Commodore 8050 drive)
- 10 megabyte disks (Commodore 9090 hard disk)
- Printers including a wide range of inexpensive IEEE and RS232 matrix and quality printers
- IEEE instruments such as volt meters, plotters etc.

Now you are no longer limited by the VIC or the 64's serial bus. Simply by attaching INTERPOD you can vastly increase the power of your VIC 20 and when used with the new 64, INTERPOD turns the computer into a really powerful system.

With INTERPOD the VIC and 64 become capable of running really professional quality software such as Word-processing, Accounting, Instrument control and many more.

INTERPOD will work with any software. No extra commands are required and INTERPOD does not affect your computer in any way.

Using INTERPOD is as easy as this:

Simply plug INTERPOD into the serial port of your computer, power-up and you are ready to communicate with any number of parallel and serial IEEE devices and any RS232 printer.

Simply incredible at £59·95

Prices include VAT, Postage and Packing. Delivery normally 14 days. Export orders at no extra cost.
Dealer enquiries welcome.

Send cheque/PO now to:-

Cheetah Marketing

Cheetah Marketing Ltd, Dept CU, 24 Ray Street, London EC1R 3DJ. Tel: 01 833 4909. Telex: 8954958.

COMMODORE 64 ON PRESCRIPTION

by Karl Dallas

This month, Karl Dallas looks at an interesting use for the Commodore 64 in small business. A High Street chemist shop, to be precise, in which the 64, together with a printer and software, is helping to make the dispensing of medicines easier.

Remember the days when chemists' labels used to be indecipherable? The combination of a mumbled consultation with a doctor, an equally indecipherable prescription, and a bottle of pastel-coloured liquid bearing the barely readable description saying something gnomic like "The Linctus, to be taken as directed", must have been fairly lethal at times.

You may have noticed that things have changed, and that a lot of chemists' labels seem to have become computerised, so you still may not know what you're taking, but at least you can read it.

At the beginning of last year (1984), a combination of the professional Code of Ethics laid down by the Pharmaceutical Society and actual government labelling regulations, have meant that all labels on professionally dispensed prescriptions must be mechanically printed in some way, and they must carry the following information: the name of the patient, the name and address of the pharmacist, the date, the quantity contained and the warning: "Keep medicines out of the reach of children".

And there's more, the label must also contain the name of the product (or, if preferred by the doctor, something more vague like "The tablets", the doctor's instructions on how the medicine should be taken and any other cautions, such as "May cause drowsiness" etc.

With the average pharmacist dispensing at least 1000 different products, coping with all that was a bit of a chore — and indeed Boots the Chemists asked for and obtained a special dispensation allowing them to start operating the new rules only at the beginning of 1985.

A number of chemists use the Epson HX20 portable printer for this purpose. It has the advantage of a built-in microprinter that uses label-width paper, but its memory limitations, even in its expanded form, work against it. It is also rather slow.

Commodore in Crewe

Thanks to a Crewe pharmacist, who first tried a system using the Commodore 64 in his seven retail shops and found it so useful that he's now set up a special company to market the system, more and more chemists are finding a Commodore 64 set-up abolishes the limitations that held back the portable system.

John Williams originally wrote the program on an Olivetti and transferred it to a Sirius, but while the 16-bit machine was very fast and efficient it was obviously out of the grasp of many of Britain's 10,500 chemists, pricewise, so he converted it for the cheaper and more accessible 64.

The program consists basically of tape or disk plus an EPROM which fits into the cartridge slot. As originally designed, the EPROM acted as a buffer for the printer and loaded the drugs available into the system above Basic, making more efficient use of memory.

But it's now being redesigned to put the entire program on to the EPROM, making it available on power-up. As it is, the program takes about three minutes to LOAD from disk, or 15 minutes from tape.

Drugs in memory

The system comes complete with 800 of the most likely drugs pre-programmed into it, and the user can input a further 400. Any of these can be selected either by their initials or a code letter or number.

If the drug prescribed is not included in that 1200 drugs total, then it allows the name to be input specially.

The doctor's instructions are coded into three sections, the first being the quantity (eg "one tablet"), the second the action to be taken (eg "to be taken") and the third the frequency (eg "three times daily after meals") or whatever.

How it is taken is linked in the program with the drug name, so the second part of the instructions is automatic. There's no risk of the patient being told to rub an aspirin on his leg before taking a bath, as the programmer's son, Stephen, laughingly pointed out.

In all there are 24 pre-programmed instructions within the program, and the pharmacist can add up to six more. There are also warnings and advice, like not mixing certain drugs with alcohol, or to be taken with food.

The program needs a Commodore 64, tape recorder or disk drive, an Epson FX80 or RX80 printer, and a monitor. The whole package, including the hardware, sells at £948.75 (£851 to members of the National Pharmaceutical Association), from Williams Applied Computers.

BUSINESS NEWS

Graphics for Vizastar

That long-advertised and awaited program, *Vizastar*, looks as though it has finally got its act together after a number of false starts. At the time of writing, the very sophisticated graphics add-on has become available, making possible the preparation of pie and multi-bar charts as well as the simpler bar and line charts available in the basic package.

The good news is that the graphics program is copyable, so it can be put on to every data disk. The bad news is that if you've already got Vizastar, it'll cost you another £14.95 for the good graphics.

Meanwhile, we are now promised the equally long-awaited 8K extra-memory cartridge for Vizastar which will also include the special graphics, at an all-in cost of £129.95. And the Pet version, to run on the 8296 with between seven and eight times the number of records on the 8250 disk drive than is possible on the wheezy old 1541, should be out, too, at just under £250.

Of course, 64 users who also own a business Pet can get the advantage of larger (and faster) disk performance from the 8250 — as long as they have some kind of IEEE interface. Kelvin Lacey of Viza Software says the Interpod isn't really suitable and recommends instead a DAMS interface. Of course, since the Viza memory cartridge has to be in place, this should be one that permits one cartridge to be piggy-backed on to the interface. Viza Software is on 0634 813780.

Packages from Practicorp

With the launch of the *Practifile* database, the PS programmable spreadsheet, the Practicalc II, a spreadsheet with WP option, Practicorp have now got what is a really powerful total package with a number of alternative options.

In many ways, Practicalc II can be considered as a more powerful version of the original program for the Vic and 64, with the addition of the word-processing option, which uses the "long label" facility to produce lines of text up to 100 characters wide, with most of the basic text formatting, block move, copy, delete etc functions available in a wordprocessing package.

The popularity of spreadsheets with "procedures", like Lotus 1-2-3 in the world of the more powerful PCs, has introduced the idea of programmable spreadsheets to the smaller user, and PS offers that facility. However, this is at the expense of a much smaller sheet: maximum size 2000 cells. The commands are in Basic, however, which don't require the learning of a special "macro" language, though some extra commands are also supported.

Practifile is a medium-power database, allowing a maximum of 20 fields per record, shared between a maximum of 254 characters, with no more than 79 characters per field and no more than 70 characters per field name. The number of records per file is dependent upon record size, but could be as many as 3876 on a 1541 or 7090 on an 8050.

All the Practicorp programs can access each other's files, but this facility is not too well documented.

Practifile costs £44.50; the other two new programs cost £69.50 each. More details on 0473 46271.

Micro Swift pops up

Still on spreadsheets, Audiogenic have produced their Micro Swift spreadsheet, sharing the pop-up menu concept with their very excellent Micro Magpie, at £19.95, making it a really powerful, really friendly program at a really bargain price.

It has a total of 6600 cells — labelled A to Z horizontally and 1 to 254 vertically — though to be fair, most packages run out of memory before they run out of cell space.

The spreadsheet is programmable, and the program procedures can be called from a menu, or implemented directly. Four applications "templates" are included on the disk: home budget, car costs, loan analyser and expenses.

Audiogenic have obviously found some market resistance to their previous policy of cartridge-based programs with quite lavish manuals, since they have now produced both Magpie and Wordcraft on disk, at a lower price, with slightly abbreviated but still adequate manuals.

This now means that there are two Wordcrafts on disk for the 64, from Dataview (who wrote the program) for £49.95, and Audiogenic's for £24.95. Confusing!

Busicalc threesome

Supersoft has announced three new versions of their Busicalc spreadsheet, for the Commodore 64 and for the 32K and 96K versions of the 8000-series Pets. The 64 version of Busicalc 3 costs £75 and offers nearly 2500 cells organised as up to 999 rows or up to 200 columns. Obviously, since the number of rows multiplied by the number of columns equals nearly 200,000 cells, you have to decide whether you want a tall skinny sheet or a short fat one.

There are 1500 cells organised into up to 750 rows or 200 columns on the 8096 for £125. The 8032 version, with 500 cells, also costs £75.

Busicalc 3 has "three-dimensional" calculating capability, meaning that sheets can be added or summarised on another sheet, and that formulae can be used to extract very sophisticated breakdowns of data on other sheets.

The 1541 disk version comes with a special fast loader, which cuts down LOADing time from 90 seconds without the loader to 30 seconds.

Searching for Paper Clip

Who is importing Paper Clip (if anyone)? Callers to Kobra, the old importers, are referred to Handic, who deny all knowledge.

Some dealers have stocks, possibly from the time when it was freely available, and when they're gone there may not be any more.

A pity, since Paper Clip, from the Canadian company Batteries Included, is/was one of the best post-formatted word processing programs around, with sophisticated sorting and column move commands not generally available.

Database from Handic

Meanwhile, Handic themselves are planning to launch a new database program, called Data Base 64, which has quite an attractive spec: 3800 records on a 1541 disk, record length between eight and 254 characters, spread across up to 18 fields of up to 27 characters per field.

It's claimed to be very fast, with an average of one second for search on a key (most DB programs are even quicker on the "next" search criteria, and possibly this will be no different).

It will work with all Commodore printers, including the 1526, which gives problems to some programs. Price is expected to be about £70. Handic is on 0344 778800.

EPIDEMIC —

by Frank Rooney

Watch out, there are some nasty germs about! Oops, too late. Stanley has already contracted a disease. So now it's up to you, the antibody, to stamp out the germs before they reach epidemic proportions.

To kill a germ you simply have to move into it. You can move vertically, horizontally or diagonally. The type of disease to be combatted is determined by which of the three skill levels you reach. Get to level three and you'll have the dreaded Leptospira Canicola infection to deal with. And the nastier the disease, the faster the germs multiply.

If the disease gets out of control then poor old Stanley will be forced to resort to penicillin. Your mission will have failed! Full instructions are included in the game.

```
10 GOTO990
20 POKESD+5,64:POKESD+6,128:POKESD+24,15:POKESD+4,33
30 POKESD+1,28:POKESD,214:FORSZ=1TO20:NEXTSZ
40 POKESD+1,57:POKESD,172:FORSZ=1TO10:NEXTSZ
50 POKESD+14,0:POKESD+4,0:POKESD+5,0:POKESD+6,0:RETURN
60 Q=0:GOSUB360:POKEW,A:POKEW+W1,6:T=0:TI$="000000"
70 IFQ=0THEN190
80 IFQ>5+5*DTHEN660
90 IFVAL(TI$)-T<4-DTHEN120
100 B=INT(RND(1)*897+S):IFPEEK(B)<>32THEN100
110 POKEB+W1,2:POKEB,Y:GOSUB20:POKEB,P:Q=Q+1:T=VAL(TI$)
120 M=PEEK(56321)
130 M=15-(MAND15)
140 IFV(M)=0THEN70
150 IFPEEK(W+V(M))=32THEN180
160 IFPEEK(W+V(M))=PTHENQ=Q-1:GOTO180
170 GOTO70
180 POKEW,32:W=W+V(M):POKEW,A:POKEW+W1,6:GOTO70
190 FORI=1TO100:POKE53280,INT(RND(1)*16):NEXTI:POKE53280,1
200 POKESD+5,64:POKESD+6,128:POKESD+24,15:POKESD+4,33:FORSY=1TO3
210 POKESD+1,34:POKESD,75:GOSUB230:POKESD+1,43:POKESD,52:GOSUB230
220 POKESD+1,51:POKESD,97:GOSUB230:POKESD+1,43:POKESD,52:GOSUB230
230 FORSZ=1TO50:NEXTSZ:RETURN
240 POKE198,0:PRINT"■■CONGRATULATIONS —"
250 PRINT"■■YOU HAVE CURED STANLEY OF HIS DISEASE!"
260 POKESD+14,0:POKESD+4,0:POKESD+5,0:POKESD+6,0
270 FORI=1TO100:POKE53280,INT(RND(1)*16):NEXTI:POKE53280,1
280 SC=INT((1/VAL(TI$))*100*10↑D)
290 PRINT"■■■
```

```
630 W=1566:W1=54272:FORI=1TO6-D
640 B=INT(RND(1)*897+S):IFPEEK(B)<>32ORB=WTHEN640
650 POKEB+W1,2:POKEB,Y:GOSUB20:POKEB,P:Q=Q+1:NEXTI:RETURN
660 FORSY=1TO3:POKESD+5,64:POKESD+6,128:POKESD+24,15:POKESD+4,33
670 POKESD+1,6:POKESD,108:GOSUB700:NEXTSY
680 POKESD+5,64:POKESD+6,128:POKESD+24,15:POKESD+4,33
690 POKESD+1,4:POKESD,73:FORSZ=1TO500:NEXTSZ:GOSUB710:GOTO720
700 FORSZ=1TO30:NEXTSZ:FORSZ=1TO50:NEXTSZ
710 POKESD+14,0:POKESD+4,0:POKESD+5,0:POKESD+6,0:RETURN
720 POKE198,0:PRINT"■■ YOU FAILED !!! ■"
730 PRINT"■■ POOR STANLEY WILL HAVE TO HAVE....":FORI=1TO1000:NEXTI
740 PRINT"■    ■ PENICILLIN ■":FORI=1TO500:NEXTI
750 PRINT"■■■■■■■■■■"
760 PRINT"
770 PRINT"
780 PRINT"
790 PRINT"
800 PRINT"
810 PRINT"
820 PRINT"
830 PRINT"
840 PRINT"
850 PRINT"
860 PRINT"
870 PRINT"
880 PRINT"
890 PRINT"■
900 S$="■
910 S$=S$+"■
920 FORI=24TO11STEP-1:FORH=1TO100:NEXTH:PRINT"■■■■■■■■■■"TAB(I)S$
930 NEXTI
940 FORH=1TO30:POKE1435,78:POKE55707,2:POKE1555,77:POKE55827,2
950 POKE1435,32:POKE1555,32:NEXTH
960 FORI=20TO16STEP-1:PRINT"■■■■■■■■■■■■■"TAB(I);:FORH=1TO100:NEXTH
970 PRINT"■■■■■■■■■■■■■
```

```
5 DIMJ$(4),SC(4),A(4),D$(4):AA=50
6 FORI=0TO4:J$(I)="VIC-20":SC(I)=AA:AA=AA-5:NEXT
10 PRINT"[CLS]":W$="H":C$="[G>A][G>S][G>Z][G>X]":GOTO150
20 PRINTE$"[CU]"SPC(M)F$E$SPC(M+1)"2[2CD]"D$"[2CD][CL]"D$"[2CD]2":RETURN
30 PRINTE$"[CU]"SPC(M)F$E$SPC(M+1)"3[CD]"D$"[2CD][CL]"D$"[2CD][CL]"D$"[CD]3":RET
URN
40 PRINTE$"[CU]"SPC(M)F$E$SPC(M+1)"4[CD][CL]"D$"  "D$"[4CD][3CL]"D$"  "D$"[CD][CL]
4":RETURN
50 PRINTE$"[CU]"SPC(M)F$E$SPC(M+1)"5[CD][CL]"D$"  "D$"[2CD][2CL]"D$"[2CD][2CL]"D$
"  "D$"[CD][CL]5":RETURN
60 PRINTE$"[CU]"SPC(M)F$E$SPC(M+1)"6[CD][CL]"D$"  "D$"[3CL][2CD]"D$"  "D$"[2CD][3C
L]"D$"  "D$"[CD][CL]6":RETURN
70 PRINTE$"[CU]"SPC(M)F$E$SPC(M+1)"7[CD][CL]"D$"  "D$"[3CL][2CD]"D$;D$;D$"[2CD][3
CL]"D$"  "D$"[CD][CL]7":RETURN
80 PRINTE$"[CU]"SPC(M)F$E$SPC(M+1)"8[CD][CL]"D$"  "D$"[CD][3CL]"D$"  "D$"[2CD][3CL
]"D$"  "D$"[CD][3CL]"D$"  "D$"[CD][CL]8"
85 RETURN
90 PRINTE$"[CU]"SPC(M)F$;
92 PRINTE$SPC(M+1)"9[CD][CL]"D$"  "D$"[CD][3CL]"D$"  "D$"[CD][2CL]"D$"[CD][2CL]"D$
"  "D$"[CD][3CL]"D$"  "D$"[CD][CL]9":RETURN
100 PRINTE$SPC(M+1);
102 PRINT"10 [CD][3CL]"D$"  "D$"[CD][3CL]"D$"  "D$"[CD][3CL]"D$"  "D$"[CD][3CL]"D$"
 "D$"[CD][3CL]"D$"  "D$"[CD][3CL] 10"
105 RETURN
110 PRINTE$SPC(M+1)"J[2SPC][CD][3CL][G<A][G>*][G<S][CD][3CL][G>-] [G>-][CD][3CL]
[G>-]"D$"[G>-][CD][3CL][G>-] [G>-][CD][3CL][G<Z][G>*][G<X][CD][3CL][2SPC]J":RETU
RN
120 PRINTE$SPC(M+1)"Q[2SPC][CD][3CL][G<A][G>*][G<S][CD][3CL][G>-] [G>-][CD][3CL]
[G>-]"D$"[G>-][CD][3CL][G>-] [G>-][CD][3CL][G<Z][G>*][G<X][CD][3CL][2SPC]Q":RETU
RN
130 PRINTE$SPC(M+1)"K[2SPC][CD][3CL][G<A][G>*][G<S][CD][3CL][G>-] [G>-][CD][3CL]
[G>-]"D$"[G>-][CD][3CL][G>-] [G>-][CD][3CL][G<Z][G>*][G<X][CD][3CL][2SPC]K":RETU
RN
140 PRINTE$"[CU]"SPC(M)F$E$SPC(M+1)"A[2SPC][3CD][2CL]"D$"[3CD]A":RETURN
150 B$="[RED][G>U][3G>*][G>I][CD][5CL][G>-][REV][3G>V][OFF][G>-][CD][5CL][G>-][R
EV][3G>V][OFF][G>-][CD][5CL][G>-][REV][3G>V][OFF][G>-][CD][5CL][G>-][REV][3G>V]
OFF][G>-][CD][5CL][G>-][REV][3G>V][OFF][G>-]"
155 B$=B$+"[CD][5CL][G>-][REV][3G>V][OFF][G>-][CD][5CL][G>-][REV][3G>V][OFF][G>-
][CD][5CL][G>J][3G>*][G>K][BLK]"
156 F$="[G>U][3G>*][G>I][CD][5CL][G>-][3SPC][G>-][CD][5CL][G>-][3SPC][G>-][CD][5
CL][G>-][3SPC][G>-][CD][5CL][G>-][3SPC][G>-][CD][5CL][G>-][3SPC][G>-][CD][5CL][G>J][3G>*
157 F$=F$+"[CD][5CL][G>-][3SPC][G>-][CD][5CL][G>-][3SPC][G>-][CD][5CL][G>J][3G>*
][G>K]"
160 S1=36876:S2=S1-1:VO=S1+2:CO=S1+3:F=50:POKEVO,15:P=0
170 M=2:T=0:POKECO,93:IFF<=0THENF=0:GOTO900
175 P=P+1:IFP=11THEN1000
185 PRINT"[CLS][5SPC][REV][RED]HI-LO POKER"
190 PRINT"[HOM][CD][BLK]PTS:"FTAB(11)"GAMES:"P:PRINT"HI:"J$(0)" WITH"SC(0)
195 PRINT"[HOM][3CD][2CR]"B$"[HOM]"TAB(73)B$"[HOM]"TAB(78)B$"[CD][10CR]"B$"[HOM]
[2CD]"TAB(252)B$"[HOM]"
200 E$="[HOM][4CD]":GOSUB515
320 FORT=1TO4
330 GOSUB500
335 ONXGOSUB20,30,40,50,60,70,80,90,100,110,120,130,140:GOSUB400
340 IFL=5THEN170
350 POKES1,240+T:FORW=1TO300:NEXT:POKES1,0:NEXT
360 GOTO700
400 IFW$="H"ANDA(T)>BTHENL=0:RETURN
```

```
410 IFW$="L"ANDA(T)<BTHENL=0:RETURN
420 L=5:F=F-10:FORZ=1TO150:POKES1-2,128:NEXT:POKES1-2,0:RETURN
500 B=A(T-1)
505 M=M+5:IFM>12THENE$="[HOM][14CD]":M=5
510 GETW$
515 X=INT(RND(1)*13)+1:Y=INT(RND(1)*4)+1:D$=MID$(C$,Y,1):A(T)=X:
D$(T)=D$
520 IFW$="H"ORW$="L"THEN530
530 PRINT"[HOM][BLK]":IFD$="[G>S]"ORD$="[G>Z]"THENPRINT"[RED]"
532 IFT=0THEN540
535 FORS=0TOT-1
536 IFA(T)=A(S)ANDD$(T)=D$(S)THEN515
537 NEXT:IFT>0THEN550
540 ONXGOSUB20,30,40,50,60,70,80,90,100,110,120,130,140
550 RETURN
700 FORZ=128TO254STEP.75:POKEC0,Z:POKES1,Z:NEXT:POKES1,0
705 FORJ=0TO3:IFA(J)=A(J+1)+1THENNEXT:F=F+150
710 FORJ=0TO3:IFA(J)=A(J+1)-1THENNEXT:F=F+150
740 FORJ=0TO4:FORK=0TO4:IFA(J)=A(K)THENF=F+5
750 NEXTK,J
760 FORJ=0TO3:IFD$(J)=D$(J+1)THENNEXT:F=F+100
```

This is a card game based on the 'Play Your Cards Right' theme, in which you have to decide whether you want a low or high value card. Pairs, full house, flush etc are included and bonus points are awarded for any hands that appear in a winning sequence. You start with 50 points and you get ten attempts to reach a high score or go broke — the graphics and sound are pretty neat, too.

Here's a description of how the program works:

(see over)

Victuals

The main variables used are:-
B$ — Card face down
F$ — Card outline
A — Array to hold cards showing
D$ — Suit of selected card
W$ — Select Higher or Lower
M — To print card in correct position

Line 10
Set W$ to "H" to print first card

Line 20-140
Subroutines for each card

Line 150-160
Set variables for card face down, blank cards, sound, colour, and starting point (F)

Line 170-200
Set up initial screen with five cards face down and as W$ was set to "H" in line 10 goto card selection routine at line 515

Line 320-350
is a for next loop for each card

Line 360
Go to win routine at 700 if all correct

Line 400-470
Check for successful prediction and adjust accordingly

Line 500-525
Input prediction, card selection and positioning routine

Line 530
Selects the correct colour for the suit

Line 535-537
Checks that a card is not being duplicated by comparing the current card with those already showing. Selects another card if necessary.

Line 540-550
Go-sub to print card

Line 700-790
Win routine. Checks for any pairs, flushes, full house etc, adjusts points score and re-runs from line 170.

Line 900-905
Broke routine. Plays the Death March while printing You're Broke down the screen.

Line 1000
Checks if score is eligible for Hi-Score Table.

Line 1002-1003
Enter Name.

Line 1005-1070
Sort routine for Hi-Score Table.

Line 2000-2070
Print Hi-Score Table and Another Go?

Line 3000-3010
Data for Line 900.

```
790 GOTO170
900 PRINT"[CLS][BLK]":FORI=0TO11:READB$,P,Q:PRINT"[10CR]"B$:POKES1,P:FORL=1TOQ*2
00:NEXT
905 POKES1,0:NEXT
1000 IFF=<SC(4)THEN2000
1002 PRINT"[CLS][BLK]ENTER NAME (8 LETTERS)":INPUTJ$(4):SC(4)=F
1003 IFLEN(J$(4))>8THEN1002
1005 FORT=0TO3:E=0:FORS=0TO3:IFSC(S)>=SC(S+1)THEN1050
1010 M=SC(S):K$=J$(S)
1020 SC(S)=SC(S+1):J$(S)=J$(S+1)
1030 SC(S+1)=M:J$(S+1)=K$
1040 E=1
1050 NEXTS
1060 IFE=0THEN2000
1070 NEXTT
2000 PRINT"[CLS][BLU][5SPC][REV]SCORE:[WHT]"F
2005 PRINT"[CD][5SPC][REV][RED]HI-SCORES:[2CD][BLK]"
2010 FORI=0TO4:PRINTJ$(I)TAB(12)SC(I):NEXT
2020 PRINT"[HOM][13CD][2CR]ANOTHER GAME(Y/N)"
2030 GETW$
2040 IFW$="Y"THENRESTORE:S$="":W$="H":GOTO150
2050 IFW$="N"THEN2070
2060 GOTO2030
2070 PRINT"[CLS]BYE-BYE":END
3000 DATA"Y",143,3,"O",143,2,"U",143,1,",",143,3,"R",161,2,"E",155,1," ",155,2
3010 DATA"B",143,1,"R",143,2,"O",137,1,"K",143,0,"E",143,4
```

Castle Of Terror is a suberb graphic adventure game set in the 1880's when and where "Dracula" stories abounded. You are in a village near a large Castle in which the secretive Count lives. You must travel about the village, collecting items which may be of use to you on your bold mission.

You must also find out what your mission is by talking to the right people. But don't be fooled!

- ★ Multi-word "English Language" style input
- ★ Superb, highly detailed graphics
- ★ Animated characters, special effects and sound.

Surviving is success enough, but escaping with the treasure is the ultimate achievement and won't be easily accomplished!

CASTLE of TERROR

Melbourne House

Orders to:
Melbourne House Publishers
39 Milton Trading Estate
Abingdon, Oxon OX14 4TD

Correspondence to:
Church Yard
Tring
Hertfordshire HP23 5LU

All Melbourne House cassette software is unconditionally guaranteed against malfunction.

Trade enquiries welcome.

☐ Please send me your free catalogue.
Please send me:

COMMODORE 64 SOFTWARE

☐ Castle of Terror	£9.95
☐ Commodore 64 Sherlock	£14.95
☐ Commodore 64 Hampstead	£9.95
☐ Commodore 64 The Hobbit	£14.95
☐ Zim Sala Bim	£9.95
☐ Commodore 64 Classic Adventure	£6.95
☐ Commodore 64 Hungry Horace	£5.95
☐ Commodore 64 Horace Goes Skiing	£5.95
☐ Commodore 64 FORTH	£14.95
☐ A.C.O.S.+	£8.95
☐ Commodore 64 Penetrator	£7.95

SPECTRUM SOFTWARE

☐ Spectrum Sherlock 48K	£14.95
☐ Spectrum Hampstead 48K	£9.95
☐ Spectrum Sports Hero 48K	£6.95
☐ Spectrum Mugsy 48K	£6.95
☐ Spectrum Penetrator 48K	£6.95
☐ Spectrum The Hobbit 48K	£14.95
☐ H.U.R.G. 48K	£14.95
☐ Spectrum Classic Adventure 48K	£6.95
☐ Melbourne Draw 48K	£8.95
☐ Abersoft FORTH 48K	£14.95
☐ Sir Lancelot 16K & 48K	£5.95

BBC SOFTWARE

☐ BBC The Hobbit, Model B	£14.95
☐ BBC/Electron Classic Adventure	£6.95

All versions of 'The Hobbit' are identical with regard to the adventure program. Due to memory limitations. BBC cassette version does not include graphics.

£ .....

Please add 80p for post & pack £ 80

TOTAL £ .....

I enclose my ☐ cheque
☐ money order for £ .....

Please debit my Access card No .....

.....

Expiry Date .....

Signature .....

Name .....

Address .....

.....

.....

..... Postcode .....

Access orders can be telephoned through on our 24-hour ansafone (0235) 83 5001.

YC12b

PSYCHEDELIA

A Light Synthesiser

Llamasoft

BEYOND

CHALLENGING SOFTWARE

A character you can *really* control, reacting realistically to every twist of the joystick, as he jinks and leaps in and out of his 3D background.

	Quantity	
Please send me **Psi Warrior** (Commodore 64 £9.95)		
From the authors of **Psytron** (Commodore 64 £7.95)		
Order Hotline **0858 34567.** Enquiries **01-837 2899.**	Total Price £	

I enclose a Postal Order/Cheque payable to **Beyond,** or charge my credit card

Card Number _____
Access/Visa (Delete as necessary)

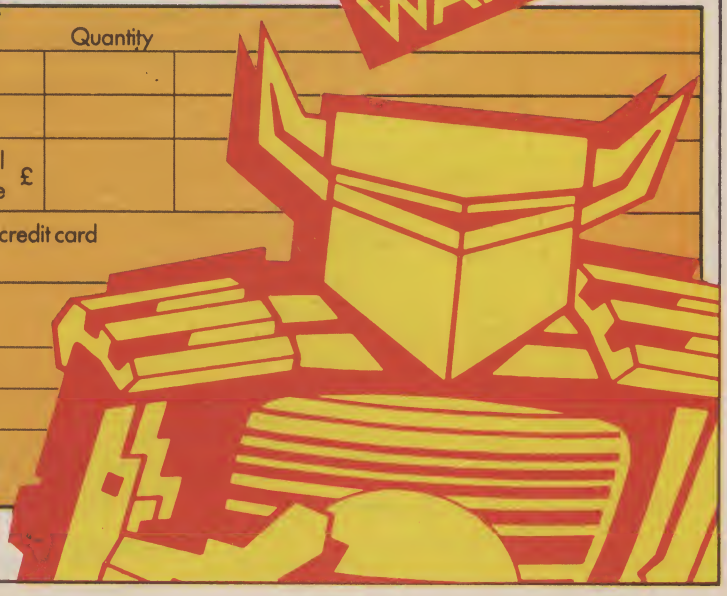
Name _____

Address _____

_____ Post Code _____

Signed _____ Please rush me details of the **Beyond** Club! ☐

Beyond Competition House, Farndon Road, Market Harborough, Leicestershire LE19 9NR



Victuals

TANK AMBUSH —

Title Screen and Instructions; Initialise game

```
10  VOL 8:SC=3072:CL=2048:BR=7:COLOR0,2,BR:Y=12:X=0
20  PRINT "
    "
30  PRINT "
    "
40  PRINT "                    INSTRU
    "
50  PRINT "                    YO
    CTIONS"
60  PRINT "                    PRINT "
    UR  TANK ":PRINT "                    SHOOT  )
    "  ENEMY  MISSILE  (  )
70  PRINT "                    LAND
    MINE  (  )AVOID  ) ":PRINT "
    "
80  PRINT "                    FIRING
    "  MOVEMENT"
90  PRINT "                    8  1  2
    "  Q "
100 PRINT "                    RETU
    RN  =  /  "
110 PRINT "                    7  =  3  TO
    "  I  =  P "
120 PRINT "                    BEGIN.
    "  /  \
130 PRINT "                    6  5  4
    "  Z "
140 GETA$:IF ASC(A$)<>13THEN 140
150 GOSUB 710:GOSUB 660
160 TB=PEEK(SC+40*Y+X):TC=PEEK(CL+40*Y+X)
170 POKE SC+40*Y+X,215:POKE CL+40*Y+X,0
```

The hunter against the hunted: hiding within the woods or lying behind hedges are devious infantrymen with dangerous heat-

NOTE:
Two symbols in this program need some explanation to avoid confusion.

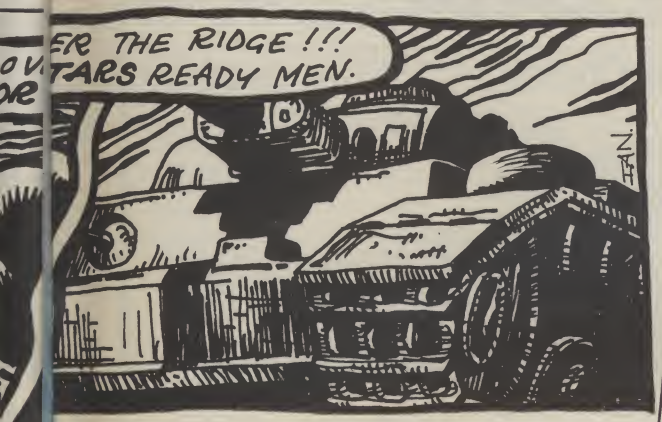
▲ = SPACE

⧗ = COLON

Get Input; Move Missile In; Move and Fire Tank

```
180  GETA$
190  IF F$="F "THEN GOSUB 450
200  E=E+1:IF E<8-LVTHEN 340
210  E=0
220  POKE SC+40*EY+EX,EB:POKE CL+40*EY+EX,EC:SOUND 1,100
     0-ABS(EX-X)-ABS(EY-Y),2
230  IF EY=YANDABS(EX-X)>1THEN EY=EY+INT(RND(0)*3-1):
     GOTO 260
240  IF EY<YTHEN EY=EY+1
250  IF EY>YTHEN EY=EY-1
260  IF EX=XANDABS(EY-Y)>1THEN EX=EX+INT(RND(0)*3-1):
     GOTO 290
270  IF EX<XTHEN EX=EX+1
280  IF EX>XTHEN EX=EX-1
290  IF EY<2THEN EY=3:
300  IF EY>24THEN EY=24
310  IF EX<0THEN EX=1
320  IF EX>39THEN EX=38
330  GOSUB 670
340  IF A$=""THEN 180
350  POKE SC+40*Y+X,TB:POKE CL+40*Y+X,TC
360  IF A$="Q "THEN Y=Y-1:SOUND 3,400,10:IF Y<2THEN Y=2
370  IF A$="Z "THEN Y=Y+1:SOUND 3,380,10:IF Y>24THEN Y
     =24
380  IF A$="I "THEN X=X-1:SOUND 3,420,10:IF X<0THEN X=0
```

Tank Ambush is taken from the Commodore 16 Games Book by Melbourne House.



seeking missiles.

These missiles will always home in on your tank. You can shoot them with keys 1 to 8, or manoeuvre by pressing Q for up, Z for down, I for left and Z for right. Have an enemy helicopter that fires heat-seeking missiles at your tank — shoot them or avoid them by manoeuvring. Introduce limited ammunition in the tank and ammunition dumps (where the tank must wait until it is reloaded). Give the killer tank hit points so it can suffer up to five hits before being destroyed. Also, create a repair station to fix up damages, and create the fuel for the killer tank and fuel dumps where it can refuel.

Program Variables

SC Screen memory
CC Colour memory
BR Background brightness level
LV Level of difficulty
TB, TC Character and colour beneath tank
F$ Fired flag
X, Y Co-ordinates of tank
E Delay for moving missile
EX, EY Co-ordinates of enemy missile
EB, EC Character and colour behind missile
SX, SY Howitzer shell co-ordinates
GB, GC Character and colour behind shell
D Firing direction
PT Score

```
390   IF A$="P "THEN X=X+1:SOUND 3,440,10:IF X>39THEN X
      =39
400   IF VAL(A$)>0ANDF$=""THEN F$="F ":SX=X:SY=Y:D=VAL(A$
      ):TS=0:GB=215:GC=0:SOUND 3,800,20
410   TB=PEEK(SC+40*Y+X):TC=PEEK(CL+40*Y+X):IF TB=42
      THEN 780
420   IF TB=43THEN TB=GB:TC=GC
430   POKE SC+40*Y+X,215:POKE CL+40*Y+X,0
440   GOTO 180
450   POKE SC+40*SY+SX,GB:POKE CL+40*SY+SX,GC
460   IF D=8ORD=1ORD=2THEN SY=SY-1:IF SY<2THEN SY=2:
      GOTO 640
470   IF D=2ORD=3ORD=4THEN SX=SX+1:IF SX>39THEN SX=39:
      GOTO 640
480   IF D=4ORD=5ORD=6THEN SY=SY+1:IF SY>24THEN SY=24:
      GOTO 640
490   IF D=6ORD=7ORD=8THEN SX=SX-1:IF SX<0THEN SX=0:
      GOTO 640
500   GB=PEEK(SC+40*SY+SX):GC=PEEK(CL+40*SY+SX)
```

Shell Collision With Missile; Increase Level

```
510   IF GB=215THEN GB=TB:GC=TC
520   IF GB<>81ANDEB<>43THEN 610
530   PRINT "■ ":IF BR=7THEN PRINT "■ "
540   SOUND 3,1000,15:PT=PT+1:PRINT "■■■■■S C O R E ";
      PT:GB=42:GC=0:GOSUB 660
550   PU=PU+1:IF PU=LV+1THEN BR=BR-1:PU=0
560   IF BR>=0THEN 600
570   IF BR=-1THEN COLOR0,1:GOTO 640
580   BR=7:COLOR0,2,BR:LV=LV+1:IF LV>8THEN LV=8
590   FOR I=1 TO 500:NEXT:PRINT "■■■■■■■■ L E V E
      L ";LV;"▲ C O M P L E T E D ":FOR I=1 TO 1000:
      NEXT:GOTO 150
600   COLOR0,2,BR:GOTO 640
610   POKE SC+40*SY+SX,43:POKE CL+40*SY+SX,0
620   TS=TS+1:IF TS>10THEN 640
630   RETURN
640   POKE SC+40*SY+SX,GB:POKE CL+40*SY+SX,GC
650   F$="":RETURN
```

Initialise Enemy Missile Location

```
660   EX=INT(RND(0)*40):EY=INT(RND(0)*22+2)
670   EB=PEEK(SC+40*EY+EX):EC=PEEK(CL+40*EY+EX)
680   IF EX=XANDEY=YTHEN 780
690   POKE SC+40*EY+EX,81:POKE CL+40*EY+EX,0
700   RETURN
```

Display Score and Generate Background; End Game

```
710   PRINT "■ ▲ ▲ ▲
```

the six-four supplies co

p.o. box 19, whitstable, kent ct5 1tj

Access/Visa Orders: 0227 266289, 0227 462600

...Number One For Choice...

The Six-Four Supplies Company is the premier independent mail-order supplier of specialist products for the Commodore 64. Shop by mail-order in confidence — and experience the kind of service enjoyed by thousands of regular customers in the UK, Europe and as far afield as Fiji. We can provide anything from our catalogue of over 1500 items of recreational, educational and business software just some of which is listed here. (Catalogue 50p and large SAE but free with updates to customers. Ideal for checking your software collection! Get on our mailing list now!)

COMPARE OUR PRICES! And we'll try to better anything lower on the software you see here!
Please add 50p P&P for orders under £20 (Europe £1 each item, airmail elsewhere at cost). Make cheques/P.O.s/M.O.s payable to
THE SIX—FOUR SUPPLIES COMPANY.

WORDPROCESSING

Bank Street Writer	d58.00
Easy Script	d65.00
Easy Spell UK	d45.00
Easy Spell US	d20.00
Heswriter	r37.00
Micro Wordcraft	d24.95
Mirage Professional	d75.00
My Word	c14.95
Omniwriter	c/d58.00
Paperclip	d75.00
Super Text Professional	d82.00
Textpro	c9.95
Textpro	d12.95
VizaSpell	d65.00
VizaWrite	d68.00
VizaWrite	r85.00
VizaWrite + VizaSpell	d99.00
Word Writer	d42.00
Word Wizard	c6.99
Wordcraft 40	d85.00

OFFICE

Adv Report Generator	d42.00
Figaro 64	d85.00
Home Office	c14.95
Jane (+mouse)	d220.00
Magic Desk	r40.00
Stat 64	r29.00
SPP (statistics)	d200.00
SPP-Junior	d39.00
Time/Money Manager	d58.00
VizaStar	r99.00

BUSINESS

Buscom4-Stock System	c/d25.50
Easy Stock	d70.00
Gemini Stock Control	c19.50
Gemini Stock Control	d24.00
Inventory Management	d66.00
Sales Ledger (Anag)	d75.00
Stock Aid	c/d30.00
Stock Control (SDL)	c20.00

ACCOUNTS

Buscom1-Monthly Accts	c/d25.50
Buscom2-Wages System	c/d25.00
Buscom3-Retail Accts	c/d25.50
Future Finance	d70.00
Gemini Cashbook	c55.00
Gemini Cashbook	d60.00
Gemini Final Accounts	c55.00
Gemini Final Accounts	d60.00
Gemini Purchase Ledger	d75.00
Gemini VAT File	c19.50
Gemini VAT File	c24.00
Invoicing	c20.00
Invostat	c/d30.00
Micro-Simplex	d165.00
Purchase Ledger (SDL)	c20.00
Sales Ledger (SDL)	c20.00
Transact	c/d30.00

PERSONAL ACCOUNTS

Budgeteer	c8.95
Checkbook	d25.00
Checkbook Manager	c14.95
Dialog Home Accounts	c14.95
Dialog Home Accounts	d16.95
Gemini Home Accounts	c19.95
Gemini Home Accounts	d24.95
Home Accountant	d62.00
Household Finance	d23.00
Money Manager (CBM)	c/d9.99
Money Manager (T'Work)	c/d20.00
Personal Accountant	d26.00
The Electronic C/book	d20.00

SPREADSHEETS

Busicalc	c17.95
Busicalc	d19.95
Busicalc II	d49.00
Busicalc II	d51.95
Busicalc III	d75.00
Calc Result	r+d95.00
Calc Result Easy	r47.50
Easy Calc	d40.00
InstaCalc	d57.50
InstaCalc Graphic	d87.50
Multiplan	d95.00
PractiCalc	d38.00
PractiCalc	c35.00
Programmable Spreadsheet	d60.00

DATABASES

Data Manager	c/d21.00
Datapro	c9.95
Datapro	d12.95
Diary 64	r29.00
DFM Database	c/d24.00
Easy File	d45.00
FCM (filing/cat/mail)	d42.00
Gemini Database	c19.50
Magpie 64	d99.00
Micro Magpie	d39.95
Mirage Database Manager	d72.00
PractiFile	d38.00
PractiFile	c38.00
Superbase 64	d88.00
The Consultant (Oracle)	d99.00
The Manager	d38.00

APPLICATION DATABASES

Easy Mail	d20.00
Electronic Address Book	d25.00
Home Inventory (Pract)	d25.00
Home Inventory (Crtve)	c12.00
Home Manager	c/d12.95
Inventory 64	d27.00
Mail List	c19.50
Mail List	d24.00
Mirco Cookbook	d27.00
Photographs	d25.00
Recipes	d25.00
Stamps	d25.00

LANGUAGES/ENHANCEMENTS

Acos+	c8.95
Breedons BASIC	d39.95
BC BASIC	r57.50
BC BASIC	c17.50
CP/M Processor	r50.00
FORTH 64	r29.95
FORTH 64(Hesware)	r47.50
FORTH (Handic)	r29.95
FORTH (Melbourne House)	c14.95
Logo (CBM)	d34.95
Oxford Pascal	d49.95
Pilot (CBM)	d24.95
Simons BASIC	r45.00
Simons BASIC Xtension	c/d19.95
Supabasic	c/d9.95
Turbo 64	c14.95
Turtle Graphics II	r50.00
Ultrabasic 64	d24.95
Zeus 64	c9.95
Zoom Pascal	d29.95

PROGRAMMING AIDS/UTILITIES

Adventure Writer	d24.95
Assembler Tutor	c/d29.95
Assembler Development	d24.95
Assembler 64 (CBM)	d41.00
Basic Lightning	c14.95
Basic Lightning	d19.95
Chartpak	d24.95
CADpack (needs lightpen)	d35.00
Codewriter	d85.00
Disco (tape-disk)	c9.95
Disk Disector	d27.50
Diskey	d36.00
Discus (tape-disk +)	c9.95
Fastback (rapid backup)	c9.95
Games Creator	c12.95
Go Sprite	c9.95
Graphics BASIC	d26.00
Hesmon	r35.00
HS-64 Assembler Dev Sys	r67.50
HS-64 Assembler	d+r55.00
Hypersave-64	c7.50
JetPack Compiler	c14.95
JetPack Compiler	d39.95
Machine Lightning	c29.95
Machine Lightning	c39.95
Master 64	d69.00
Mikro Assembler	r55.00
Mon 64	r39.50
Panorama-H	c17.95
Panorama-H	c19.95
Petspeed	d47.00
Programmers Utilities	d14.95
ProSprite	c7.50
Quick Disk	d11.00
Rocket (speed save/load)	c7.50
RBS (rapid backup)	c7.50
SAM (speech synthesiser)	d48.00
Scope	c17.95
SpriteMaker	c6.95
SuperFont	c6.95
Taper (tape backup)	c9.95
The Last One	d57.50
The Quill	c14.95
The Quill	d19.95
Victree	r53.00
White Lightning	c19.95
White Lightning	c29.95

RECREATIONAL

A full selection of games and adventure software is available, including the very latest releases. Try us first!

COMPUNET

Get on-line with a really useful and usable extension to your computer. Marvellous fun!
CBM Modem JAN SPECIAL: r95.00. Includes first year's COMPUNET subscription.

If the hotline answerphone is in use and you'd rather not place an order on the machine please leave your name and number and someone will return your call promptly. We value your custom . . . and we want to be able to help you!
PLUS-4 and C16 SOFTWARE ALSO!

SCREEN SCENE

Gunslinger
Vic 20 (+16K)
Keyboard or joystick
Omega
Price £1.99

Presentation: ■■■■□
Skill level: ■■■□□
Interest: ■■□□□
Value for money: ■■■■■

Be of good cheer Vic owners, Omega are re-releasing established titles, thinly disguised, at rock-bottom prices.

This two-player game features a fully expanded arena for a quick-on-the-draw contest. I can't see any way of outsmarting the computer, unless you are a might quicker than a microchip — so there must be two of you for the game to be playable.

The gunslingers are readily recognisable as mean hombres as opposed to token squiggles. Cacti offer cover as does the occasional stagecoach and the cheery undertakers are on hand to tidy up. There really isn't too much to the game — just the duel, with good graphics and decent sound and if that's all you want . . .

If Omega continue with this policy there should soon be some ace games sloshing around at silly prices. Does it really matter it has been around for years?

Dodo Lair
Vic 20
(unexpanded)
Software Projects
Price £5.95

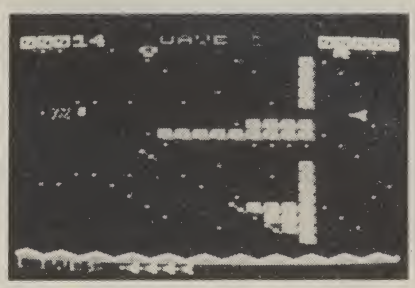
Presentation: ■■■■□
Skill level: ■■■■□
Interest: ■■■■□
Value for money: ■■■■□

To describe this space battle as frantically fast and furious is an understatement. I have been through all eight waves of Arcadia (a noted toughie), but I could hardly dent this one.

There is a technique . . . bob up and down to clear a path. Anyway, the old faithful spacecraft has been unleashed against a host of megarrific aliens who are cemented together by their loyalty to a Dodo. There are nine waves to survive: you are static while the horrendous hordes scroll your way, lobbing the odd star shell or something similar.

The purple meanie missiles must not be allowed to reach your side of the screen while the more you blast at the Buildas, the quicker they multiply. Smash through using a shield, unless you can shoot faster than they can breed.

This has good battle sounds, bright colours and is well worth the frustration it causes.



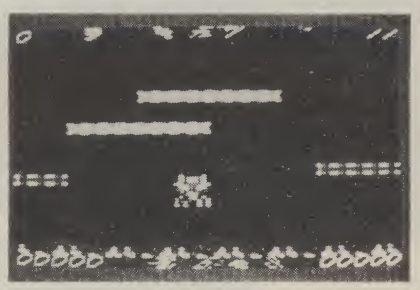
Fatty Henry
Vic 20
(unexpanded)
Software Projects
Price £5.95

Presentation: ■■■■■
Skill level: ■■■■□
Interest: ■■■■□
Value for money: ■■■■■

Many 3.5K Vic games are blighted by crummy graphics and threadbare scenery — often just the one screen.

One solution employed by considerate authors is the expanded screen with jumbo characters. Another option has been adopted here . . . multicolour-mode.

The place is a hot oven, the first of ten and the heat is on. Your only hope of not ending up as calamari is to pick up drops of water condensing on a pipe and quench the flames before the temperature hits boiling point. Sizzling fat spurts up and all that cholesterol can't be too good for your general health. Apart from fresh layouts replete with blocking ledges and oven foam to boot, there's a pugnacious pooch (him of the title) to contend with. Deserves to be bought.



Battleground
Vic 20 (unexpanded)
Keyboard or joystick
Omega
Price £1.99

Presentation: ■■■□□
Skill level: ■■■□□
Interest: ■■■□□
Value for money: ■■■■■

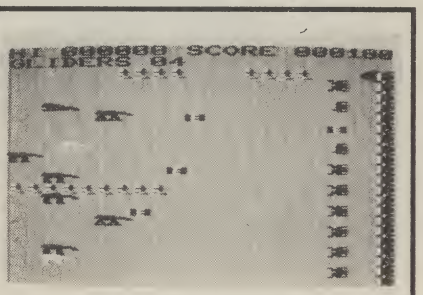
Originally imported from Germany by Anirog and now doing the rounds again with a different cassette insert.

You control a wedge-shaped flying machine which also doubles as a gun-cum-fortification maker. Dodging about behind barricades, you exchange fire with trundling armoured vehicles. These have to be weak before they crumble.

To keep the interest going, each armoured wave is of a different mark (I saw four types), yet the graphics are too small to be worthy of any attention in their own right.

At least the format is entirely distinct from the two-up Tank Duel efforts and does allow for tactics to be evolved.

This is a value for money shoot-up with ten levels of skill.



Space Shuttle
Commodore 64
Activision
Price £9.99

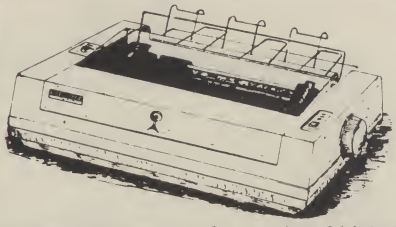
Presentation: ■■■■□
Skill level: ■■■■□
Interest: ■■■□□
Value for money: ■■■□□

You are in the hot seat of the Space Shuttle Discovery. The object is to achieve orbit, dock with the satellite as many times as you can and, finally, point the thing Earthward and land it.

As you can imagine all of this is not accomplished without a little difficulty, which is why those nice people at Activision give you a 36 page flight manual to help you work it out. Like most flight simulators the game relies less on manual dexterity than the ability to simultaneously read a dozen different instruments and make appropriate course changes.

It should prove a challenge to all but the most accomplished simulator pilots. Graphics are good and sound, whilst used sparingly, is realistic.

IF YOU OWN A COMMODORE 64.
YOU CANNOT AFFORD TO IGNORE THESE OFFERS



+

- Will print the full CBM character set
- Will print User Defined character set
- Will make High and Low RES Screen Dumps
- Is compatible with most utilities
- Will work with most Leads (e.g. Audiogenics/Supersoft)
- Basic will work with all Centronics Printers

= **£195.00 inc VAT**

Printer, supplied with Commodore 64 Interface for under £200 INC VAT! The KDC FT5001 is a 100CPS, Bi-directional with logic seeking, dot matrix printer of the 8 bit parallel CENTRONICS style with an optional RS232C with 2K buffer.

SUPPLIED WITH A PROPER MULTICORE CABLE

EPSON MAGIC is, of course, available without the printer for the meagre sum of **£9.50** (software only) or **£19.50** with cable (Yes, it does work with Easyscript!)

THE MANY FEATURES INCLUDE:-
Friction & Ad; Sprocket teed with auto insert
Super & Subscript PICA & ELITE
ITALICS. User fonts
+ descenders.

NEW! 1541 DISK USERS!
HYPERDRIVE

WILL TURBOCHARGE YOUR DISK-BASED SOFTWARE TO LOAD UP TO FOUR TIMES FASTER!
SUPPLIED ON DISK, WITH MANUAL, FOR ***£9.50***

OLD! YES INDEED . . . OUR EXTENDED BASIC WITH BUILT-IN ASSEMBLER + 60 PAGE MANUAL
Was the 1st such utility available for the Commodore 64. And it still takes some beating at just***£19.50***

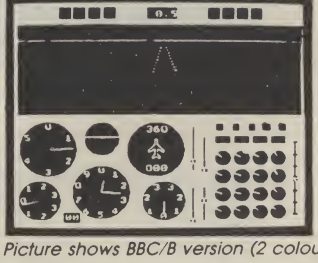
FULL *details on these and our other titles (inc. games) are given in our information booklet — "UPDATE" — its free*

WRITE OR PHONE TODAY!

01-670 3533 MUSHROOM SOFTWARE 193 ROMANY RD. LONDON SE27 9PR

---

747 *Flight* Simulator
(over 15,000 sold already)



Picture shows BBC/B version (2 colour)

Look at these features on our CBM-64 version.

- ★ full colour high-resolution graphics
- ★ fast – 100% machine code
- ★ real engine sound and audible alarms
- ★ take-off, land and fly between seven airports
- ★ instrument landing system (ILS)
- ★ precise, perspective view through cockpit window
- ★ joystick optional
- ★ full, four-engine instrumentation
- ★ 21 real dials plus many other indicators

Available direct from DACC Ltd.

Cassette £9.95 **Disk £11.95**

★★ Commodore 64 Accessories ★★

★★ High quality PVC dust cover	each: £2.95
★★ Blank C20 cassettes	five for: £2.75
★★ Disks s/s s/d	each: £1.95
★★ Disk storage box	each: £1.95
★★ Flow-chart template	each: £1.00

all prices include VAT, P&P
Despatch within 48 hours by first class post
★★ Special Offer – order 747 F/S and receive dust-cover or any other accessory absolutely free ★★

order from DACC Ltd. (Dept CU5 2)
23 Waverley Road, Hindley, Wigan, Lancs. WN2 3BN.

Sophisticated Games for Vic 20/CBM 64

Vic/64 Cricket Realistic game of tactical skill and luck. Ball by ball commentary with full scorecard and all the major rules of cricket correctly interpreted. Printer/game save features.
Vic Cricket for Vic 20 +16K £5.99
New: 64 Cricket with extra features £6.99

League Soccer League title game for 2-24 players with automatic fixtures, action commentary, results check, scorers, league table, cup draw etc. Printer/game save features.
League Soccer for Vic 20 +16K £5.99
New: 64 League Soccer with many more features still £6.99

Whodunnit 12 guests have gathered for drinks at Murder Manor, but one of them has more than drinks on his mind. Addictive and thrilling detective game for 1 to 6 players, with genuinely different game each time.
Whodunnit for Vic 20 +8K or any CBM 64 (state which) £4.99

Top of the Pops Easy to learn about the music business. For up to 10 players. Include printer/game save features.
Top of the Pops for Vic 20 +8K £4.99
New: 64 Top of the Pops – even bigger and better £5.99

Election Night Special Lead your own Party into the next General Election. A game for 1-3 players. Printer/game save.
Election Night Special for Vic 20 +8K or any CBM 64 ..... £4.99

Party 4 Four games to match the progress of your party: Masterword, A Day at the Races, Game X (Strip Poker) and Consequences. Harmless fun (nothing offensive) but good fun.
Vic Party 4 for Vic +3K or more £5.99
64 Party 4 ..... £5.99

NEW: Adults Only Fun game for 2-10 broadminded players. Lots of cuddling and kissing, plus many other rewards and forefeits: you never know what you'll end up doing, or with whom! Nothing offensive, but you MUST be fairly broadminded.
Adults Only for Vic 20 +16K expansion £5.99
64 Adults Only £5.99

Disc versions available for all games – £2.00 extra.
All prices include P&P (UK only). Games sold subject to conditions of sale which are available on request.
Please write or phone for details of our full range.

Sophisticated Games Dept CU
27 Queens Road, Keynsham, Avon BS18 2NQ
Tel: 02756 3427

SCREEN SCENE

Bear George
Commodore 64
Cheetahsoft
Price £6.95

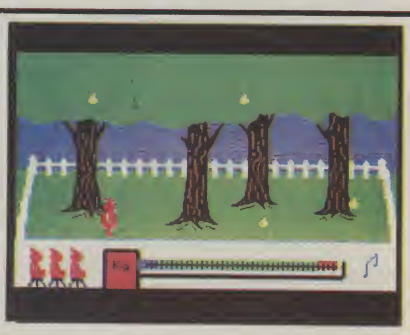
Presentation: ■■□□□
Skill level: ■■■□□
Interest: ■■■□□
Value for money: ■■□□□

A hungry looking Bear George is wandering around in the orchard looking for windfall apples to eat, so he can become fat enough to go and hibernate.

To hinder you further a pesky squirrel keeps dropping nuts from the boughs above. If one of these hits George on the head it causes him to fall on his bum and lose some of his hard-earned fat.

After munching apples George is magically transported to a holiday skiing resort. George must make his way to his cave avoiding such hazards as manic skiers, spiders, and a caged truck which carts him back to the orchard if he's not fat enough to go bye byes for the winter.

I tired of this game fairly quickly. The two screen scenario is limiting and leaves much to the imagination. The graphics are at best average and at worst badly programmed.



Snokie
Commodore 64
Funsoft/U.S Gold
Price £9.95 cass
£12.95 disk

Presentation: ■■■■□
Skill level: ■■■■□
Interest: ■■■■□
Value for money: ■■■■□

The theme to this game is a familiar one. The hero is a character called Snokie, a cute looking pink penguin, who can jump pretty well but can't fly. Contact with water usually proves fatal.

Snokie's most immediate concern is that his girlfriend Cara has been abducted by the evil Grodies (boo hiss).

You have to guide Snokie through seven screens to reunite him with Cara. There are hazardous glaciers with deadly boulders to be negotiated, moving ice floes to be hopped across, and falling icicles which threaten to spear you at every move.

The graphics are imaginative and well done. When Snokie cops it a skull appears in his place accompanied by a catchy little tune. On the whole the game is very enjoyable and highly addictive.

Kong Strikes Back
Commodore 64
Joystick only
Ocean
Price £7.95

Presentation: ■■■■■
Skill level: ■■■□□
Interest: ■■■■□
Value for money: ■■■■■

This time round our Thrilla Gorilla arch enemy has taken a fancy to roller-coasters. Barrels are out, cars are in. These respond to the laws of gravity by changing pace on the slopes — a trap for the unwary.

Armed with four bombs, you must reach the top of the switch-back to effect a rescue. Grab the various bonuses from the ladders and prepare for the second of the four tortuous circuits. From now on fairground objects exert a stronger influence on the proceedings and even custard pies muscle in on the action.

A worthy follow-up to the original, with a well developed theme, right down to the hurdy-gurdy music. The screen spills over into the border, reflecting the overall quality of this program: in fact everything has been refined and polished for maximum enjoyment.

Raid On Bungeling Bay
Commodore 64
Ariolasoft
Price £9.95 cass
£12.95 disk

Presentation: ■■■■□
Skill level: ■■■■□
Interest: ■■■■□
Value for money: ■■■■■

The story so far. The evil Bungeling Empire is churning weapons out of its six computer controlled factories. Could it be their aim is universal domination?

Each of their factories is on an island and is well protected by ground and air defences. On your side you have five helicraft equipped with nine bombs and an unlimited supply of missiles. Your base is the helicraft carrier and you can return here to repair damage and restock with bombs.

The objective is twofold. Firstly to bomb the factories out of existence, secondly to defend your carrier. The game requires more attention to strategy than your average 'shoot 'em up'.

Graphics are well used and the wrap around screen adds to the realism of it. Nice touches include a newspaper story and victory parade if you are successful.

Starace
Commodore 64
Mastertronic
Price £1.99

Presentation: ■■□□□
Skill level: ■■□□□
Interest: ■■□□□
Value for money: ■■■□□

Starace is one of Mastertronic's £1.99 range and as far as this one is concerned I'd say it was overpriced.

The planet Alpha One is dying and the humanoid inhabitants have to find a new home. You are one of the space fighters sent out to accomplish this task. On your quest you must travel through five galaxies.

In Galaxy One three of the aforementioned aliens attack your ship and as you can't fire back you must run away!

In Galaxy Two, you must avoid the asteroids and fireballs. There aren't that many of them so colliding with them is probably almost as difficult as avoiding them. Galaxy Three is more interesting. Pilot your ship into the gravitational beam of the mother ship to achieve docking whilst avoiding the asteroid shower (more of a light drizzle).

This version is much too easy to be any fun.

SCREEN SCENE

Cadcam Warrior
Commodore 64
Taskset
Price £9.95 cass £12.95 disk

Presentation: ■■■■■
Skill level: ■■■■■
Interest: ■■■■□
Value for money: ■■■■■

CADCAM is an acronym for Computer Aided Design-Computer Aided Manufacture which is a reality here and now. But for the purposes of the scenario we have jumped into the future to arrive at the inception of a new processing unit. Cadcam Technology have booked a whole floor at the 25th Cadcam International Show to demonstrate their remarkable machine. Naturally security is tight. Problem is the machine's gone up the creek and no-one can break the security to fix it. The memory bank dedicated to human needs has gone down. There is no time for a major overhaul but there is time to send in the mini-android MAD 2.

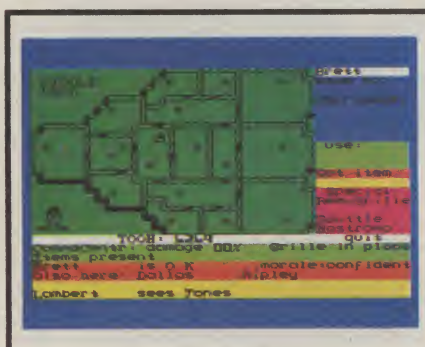
He must work his way across a series of 3D metal plates, exploring both surfaces and taking the necessary steps to clear each screen of the system's defences

Black Thunder
Commodore 64
Quicksilva
Price £7.95

Presentation: ■■■■■
Skill level: ■■■■□
Interest: ■■■■□
Value for money: ■■■■■

Loco was a great game from the self-taught Tony Crowther, written while he was with Alligata. While awaiting (eagerly!) for the follow-up on the Gremlin Graphics label in zoomed Black Thunder courtesy of Quicksilva. Never look a gifthorse in the mouth, even if it is mutton dressed up as lamb. Loco now looks positively homespun by comparison, as you stealthily ease into the purple death mobile.

Your ambition is to escape from the confines of a futuristic city; Mr. Nasty's aim is to keep you there. As you make a dash for it, it dawns on you that droid tanks are careering towards you; helicopters and missiles are tracking from behind and somewhere above are malevolent UFOs, which seem indestructible from where I'm standing. You're bristling with shells, a forward and a rear gun (you control the



Alien
Commodore 64
Argus
Price £8.99

Presentation: ■■■■□
Skill level: ■■■■□
Interest: ■■■■□
Value for money: ■■■■□

Try and kill the alien by commanding the crew to move around the ship and carry out various instructions. The alien can be killed either by shoving it out of an airlock or by self destructing the ship and evacuating (only if there is nobody left alive). You have to take Jones, the ship's cat, with you. Mother, the ship's computer, won't launch the lifeboat if you've left anyone behind.

Three types of information are displayed on the screen for three decks on the Nostromo and you can obtain a map of any one of them. Each map gives details of room locations, stairs to other levels, and positions of grills. Instructions are given to the crew using the Command Monitor. This enables you to select individual crew members and instruct them using a menu system, though the crew may not always obey you. Each of them has their own personality

Hunchback II
Commodore 64
Joystick only
Ocean
Price £7.95

Presentation: ■■■■■
Skill level: ■■■■□
Interest: ■■■■□
Value for money: ■■■■■

Level or platform games are almost two-a-penny these days. Well, this offering probably won't lead to early retirement for all at Ocean but it does have plenty going for it. It has an identity, it's not Jet Set Willy in dark glasses nor Chuckie Egg in drag. No, this climbing caper exudes the aroma of old Notre Dame, cartoon style.

Quasimodo and friends will keep you wiggling the joystick during many hours of compelling play as you strive for the next screen. The denouement centres around a clock tower, with clockwork mechanisms, cogs and winding gear . . . all Hunchback mincemeat-makers. Of course, there are also the bells, the bells! These replace the standard power pills or keys. Mopping-up the complete set leads you further up the clock tower where you get to ring the

Questprobe featuring Spiderman
Adventure International
Price £6.95

Presentation: ■■■■□
Skill level: ■■■□□
Interest: ■■■□□
Value for money: ■■■□□

If you like Marvel comics — even though DC are better — I'd say there's a fair chance that this will be your kind of thing. It's another Scott Adams adventure game, this time featuring Spider-Man.

In your travels you bump into many of Spiderman's foes — Doctor Octopus, Hydro-Man and Mysterio to name but three.

The big problem with Spiderman's foes is that they might just as well be blocks of stone. I tried kicking Hydro-Man and he remained inert. So, after a pause for thought I decided that jumping on him from the ceiling would probably do the trick. Still no reaction.

Shouting abuse was equally ineffective. Perhaps I needed more points before Hydro-Man would take any notice of my kicking and foul language. Either way I felt there was a definite lack of action considering the abundance of evil arch-criminals and superheroes.

(by shooting, gathering or whatever) to enable further progress. The defences are computer generated making everthing prological — it's up to MAD 2 to crack the pattern and decipher the internal architecture to facilitate the journey to plate 8,192.

Each plate is depicted in full perspective, with ridges and holes connecting the two surfaces. The action is pure arcade reinforced with interlacing puzzles; in fact it's almost a project. The challenge of Cadcam Warrior lies in the tactical problem of plotting your way through 8,192 screens using as many short-cuts as possible. Must be described as innovative and fresh. Taskset regard Cadcam as their best yet. Having just seen Beside the Seaside I disagree — see next month's User and decide for yourself.

altitude of fire on this one) and you can look forward to grabbing further supplies of ammo en route. Put up a defensive umbrella, but be cagey.

The screen is divided horizontally: the lower portion is a scrolling radar display of the road network (which makes Spaghetti Junction look like a slip road) showing your position and the approach of danger. The business half is a constantly moving panorama of the cityscape with the interceptors superimposed. You can watch your missiles launch, judge their height and thrill to direct hits.

Apart from a tingling tune the program speaks to you: ''Get ready''; ''Game over''; Your score is . . ,'' which gives it an arcade feel, but may also get on your nerves after a while.

Tony Crowther's next game will also be on the Quicksilva label.

and if you instruct a queasy crewmember to attack the alien they may think twice. Another complication is that one of the crew is an android and you don't know which one it is.

If a crew member is attacked by the alien the map area fills with a large image of the writhing monster. This can be quite unnerving. There are a number of possible conclusions to the game. If you are ultra successful the alien can be killed with no crew losses. Alternatively, you can bungle the whole thing by running out of oxygen or setting the self destruct and not giving yourself time to launch the shuttle.

However well you do, the game remains exciting, nail biting stuff. 'In space no one can hear you scream' the blurb says. My neighbours aren't so fortunate — I've been giving them a hard time. But who needs neighbours with entertainment like this.

big daddies and free Esmerelda into the bargain.

Each stage encourages athletic rope work as you switch bell pulleys to access ledges. Hooks and moving platforms are auxiliary modes of transport, with the ever present threat of a mangling in the giant screws and cogs below. These are most realistically portrayed as is the bone crushing. In the first three screens I only encountered bats. There are two more stages plus the belfry where fireballs, arrows, cannonballs and axes are promised. Reach the finale, ring the bells and rescue 'er indoors.

Hunchback I was the game that put Ocean on the map a year ago. Now — whether it's Daley Thompson or Frankie Goes to Hollywood — there is an Ocean game to match.

Spiderman is the second in the Questprobe series. There will be 12 games in all.

Adventure expert Keith Campbell says that each of the Marvel games are linked — though in a way not immediately obvious to the player. ''To tell you might spoil your enjoyment . . . suffice it to say that I was once again in awe of Scott's ability to create something exciting, original, and downright devious.''

Scott is pretty impressed with the comic idea himself. ''Adventure players are going to start reading comics again . . . it'll be more fun if you read the comics, but it will not be any easier,'' says Adams.

On the plus side the graphics are brilliant and lose nothing in the transition from comic book to computer screen. But it takes more than a pretty picture. Can't see this rivalling the rest of Scott's output. Check the Hulk if you want a real Marvel adventure.

• SCREEN STAR •

Tapper
Commodore 64
U.S Gold
Price £9.95 cass £12.95 disk

Presentation: ■■■■■
Skill level: ■■■■
Interest: ■■■■■
Value for money: ■■■■

If you've ever stood at a bar for what seemed like an eternity in pursuit of an alcoholic beverage or been rushed off your feet by thirsty punters serving on the other side, then this is the game for you.

Tapper casts you in the role of the frenzied bartender whose job it is to keep a never-ending stream of thirsty customers supplied with a never-ending stream of glasses of soda. We begin the tour of Sodaland in the Old West Saloon. The doors have just opened and the parched cowboys make their way to the bar. It's your job to quench their burning thirst.

The trouble with the crowd here is that they're not very polite. When they finish drinking there's no 'excuse me can I please have another when you're ready', they just sling the empty straight back at you. If you're not at the end of the bar to catch it — smash! And the boss doesn't like it when glasses get broken . . . You remember I said the customers were rude? Well, if one of them gets to the end of the bar before you've served them they'll pick you up by the scruff of the neck and sling you down the bar just like a soda!

If you prove a success in the Old West Saloon you get to move on to the 'Jock's Bar'. Jocks, we are told, are sports fans. These boys are pretty rough, they drink Green Chatreuse by the pint and woe betide anyone who gets in their way when Scotland get knocked out the World Cup or if they happen to see a Rapide Vienna fan.

En route to the Jock's Bar is the Bonus Round where you will meet the Soda Bandit. The Soda Bandit is a sort of Marty Feldman character with big bulbuous eyes and a black hat. He shakes up five cans of fizzy drink, and then switches them around. To get a bonus you have to pick the unshaken one. You get to play the Bonus Card every time a bar is successfully completed.

And so you go on your merry way. If you make the grade as a bartender at the Old West Saloon and the Jock's Bar you will get to work the Punk Rocker's Bar and the Space Bar. The graphics and music are excellent and varied, and the frantic nature of the game makes boredom a very remote possibility. But I'd better not keep you any longer — your customers are getting thirsty!

Operation Salvage

How to recover a corrupted or NEWed program

by Frank Randall

Your average creased and haggard programmer won't hesitate to tell you that not being able to recover a corrupted or accidentally NEWed program is a frustrating experience. To avert premature baldness, here's an easy step-by-step method of overcoming those problems — and it works for both the Vic and Commodore 64.

Anyone who has spent a great deal of time entering a program only to find it will not reload from tape knows how frustrating programming can be. There are many reasons for tape read failures. Often the program or part of it is in memory but is not accessible because the internal pointers have not been set up correctly by the loading action, or the pointers have been overwritten. They will neither LIST nor RUN. But with a little patience and some fiddling, recovery of either the whole program or part of it is often possible.

Here's a description of the steps to take. The procedure is in the form of a series of Basic commands entered in direct mode. That means you don't need to type line numbers. How it works is explained later. For now, all you need know is that it works equally well on Vic 20s and Commodore 64s.

How it's done

We start by typing in these three lines.

Step 1 — Type **POKE 45, 200 : POKE 46, PEEK (56) – 1 : CLR** and Press Return

Step 2 — Type **A = PEEK(43) + PEEK (44)*256** and Press Return

Step 3 — Type **FORJ = 1 TO 10000 : PRINTPEEK (A + 2) + PEEK (A + 3)*256; A:A = PEEK(A) + PEEK(A + 1)*256 : NEXT** and Press Return

This will produce a list of pairs of numbers that scroll up on the left side of your screen. Holding down the Control key slows down the display. On each line the first number is the Basic line number, and the second is the address of that line. Watch for an odd looking line number; that is, one that is out of ascending sequence, followed by a line with a zero address. Then press the Runstop key. A simple example of the display would look like this:

```
10 4097
20 4176
30 4205
40 4268
1307 4301
26 0
7096 37168

BREAK
```

Take the address prior to the zero (in the example, it's 4301), add 2 to it and call the result **x**. Then you need to enter some more commands:

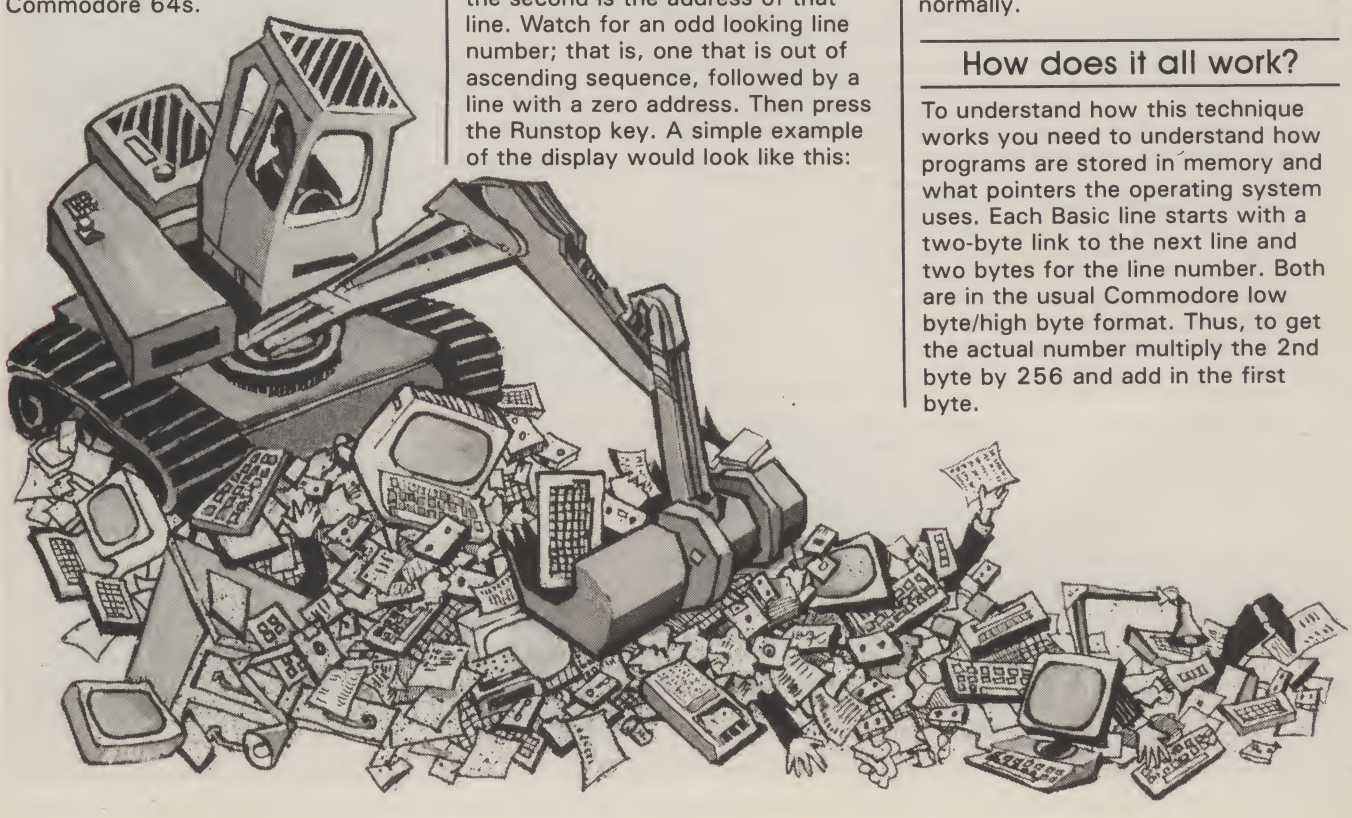
Step 4 — Type **A =** and the number called **x**. Press Return

Step 5 — Type **POKE45, A – (INT (A/256)*256):POKE 46,A/256:CLR** and Press Return

The program should now list and run normally.

How does it all work?

To understand how this technique works you need to understand how programs are stored in memory and what pointers the operating system uses. Each Basic line starts with a two-byte link to the next line and two bytes for the line number. Both are in the usual Commodore low byte/high byte format. Thus, to get the actual number multiply the 2nd byte by 256 and add in the first byte.



Various pointers are used by the operating system, but those used in the procedures described in this article are:

- Start of Basic — locations 43 and 44
- Start of variables — locations 45 and 46
- End of available memory — locations 55 and 56

Provided these are set correctly, the others are set automatically by the CLR command.

The object of typing **Step 1** is to set the end of Basic pointer to an artificially high value so that when the later commands create variables they do not overwrite the program to be restored. **Step 2** initialises variable A to point to the first Basic line, and **Step 3** is the loop which converts the line number, prints it and the address in A, and sets A from the link address in that line. Basic programs end with a link address of zero, hence the need to add 2 to the address of that line before typing **Step 4**. **Step 5** formats the adjusted address to low/high and sets the pointer in locations 45 and 46 ready for the CLR.

Salvaging a corrupted program

If the end of a program has been overwritten such that the zero link address is missing, an extra bit of work between **Steps 3** and **4** will salvage most of the program. It is important to avoid listing the program if this is suspected as this may result in the system crashing.

Go through the procedures outlined above up to and including **Step 3** and watch out for an out of sequence line number which is where the corruption starts. Subtract 1 from the address of that line, call it **x**, and then:

Step 6 — Type **POKEx,0 : POKEx+1,0 : POKEx+2,0** and press Return

Remember to type the value of **x**, not the character 'x'. Add 3 to **x** and then continue with **Steps 4** and **5** as described above. Part of the last line of the program salvaged in this way may be rubbish but it can be edited or replaced in the usual way.

Recovering from NEW

Another use for this technique is where the initial link has been destroyed by typing NEW. To recover the program in memory, type **Steps 1** and **2** and then:

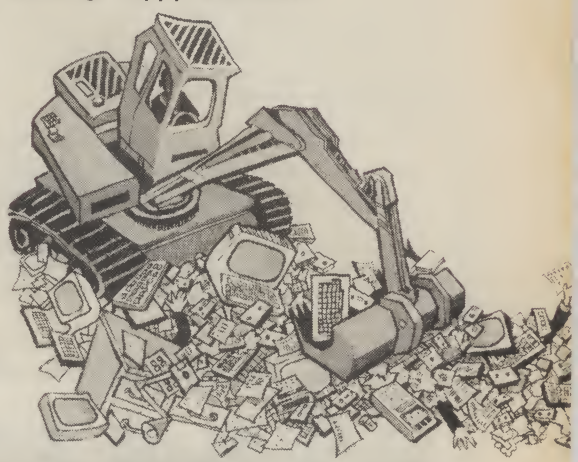
Step 7 — Type **FOR J=ATOA+255 : PRINTJ ; PEEK(J) : FORJ1 = 1TO100 : NEXTJ1,J** and press Return

Ignore the first four bytes, watch for a zero byte and then press the Runstop key. Call the address after the zero byte **x**, type the command at **Step 2** again and then:

Step 8 — Type **POKEA,x-(INT (x/256)*256): POKEA+1,x/256** (remember to use the value for x) and press Return

The missing link address will have been restored but **Steps 3** to **5** must be taken to restore the other pointers and the job is complete.

A few minutes spent fiddling in this way could save hours of retyping. Happy recoveries.



The imaginative pen of top 'Fighting Fantasy' writer Steve Jackson brings you the complete computerised, role-playing adventure package.

Your 'Game Pack' will consist of a full length adventure story and the most intriguing, complex and exciting computer program yet to be released.

As the adventure unwinds you will become 'The Swordmaster', it will be up to you, and you alone to overcome every diabolical adversary sent against you. You'll experience combat routines of such excellence you will have to gain more and more experience to delve deeper into this compulsive adventure.

Dare you enter 'The Swordmaster's' realm? . . find out in February '85. For the Spectrum 48k, Commodore 64, plus most other popular micros'.

STEVE JACKSONS SWORDMASTER SERIES

Adventure INTERNATIONAL™

85 New Summer Street, Birmingham B19 3TE Tel: 021-359 0801

SERIOUS 64 SOFTWARE

Programmers Reference Guide (Commodore) Book	£9.95
Dr Watson Basic Course (Honeyfold)t.	£10.50
Dr Watson Assembly Course (Honeyfold)t.	£12.50
Mastercode Assembler (Sunshine)t.	£14.95
Assembler Development Pack (Commodore)d.	£28.95
MON 64 (Handic)r	£37.95
Programmers Utilities (Commodore)d.	£14.99
CPM (Commodore)r&d.	£49.95
FORTH (Audiogenic)r	£29.95
LOGO (Commodore)d.	£34.95
PILOT (Commodore)d.	£24.95
Simons Basic (Commodore)r	£44.95
Petspeed 64 Basic Compiler (Commodore)d.	£44.95
Jetpack Basic Compiler (Dataview)t/d.	£14.95/£29.95
Scope 64 (I.S.P.)t/d.	£17.95/£18.95
Micro Magpie (Audiogenic)d.	£39.95
Superbase 64 (Precision)d.	£87.95
Calc Result Easy (Handic)r	£44.95
Calc Result Advanced (Handic)r&d.	£89.95
Micro Swift (Audiogenic)t/d.	£19.95
Easy Spell (Commodore)d.	£44.95
Easy Stock (Commodore)d.	£66.00
Cashbook & VAT Accounts (Gemini)t/d.	£59.95/£64.95
Final Accounts (Gemini)t/d.	£59.95/£64.95
Micro Simplex d.	£150.00

t = Tape d = Disk r = Cartridge
(Send a SAE for a list of our full range)

PLUS—THE PRICE YOU SEE IS ALL YOU PAY

★ FREEPOST (no stamp needed) for ordering ★
★ FREE postage, packaging and insurance ★
★ 14 Day MONEY BACK guarantee ★

ACT NOW, by sending cheque or postal order to:-

64 PLUS **FREEPOST, BLETCHLEY, MILTON KEYNES, MK3 7EF.**

Superbase 64

TRANSFORMS THE COMMODORE 64 INTO A FULL FEATURED PROFESSIONAL DATABASE SYSTEM, WITH UP TO 1000 CHARACTERS PER RECORD ON UP TO 4 SCREENS... AND UP TO 128 ITEMS PER RECORD, DEFINABLE AS KEY, TEXT, NUMERIC, CONSTANT, RESULT OR DATE, IN FILES OF UP TO 16M CHARACTERS! SUPERBASE 64 EVEN HAS A SPREADSHEET AND CALCULATOR CAPABILITY, CALENDAR FUNCTIONS, EASY INPUT FROM WORDPROCESSOR OR DATA FILES, BOTH MENU-DRIVEN AND PROGRAM OPTIONS, SORTING/SEARCHING, FULLY DEFINABLE OUTPUTS... SUPERBASE 64 IS ESSENTIAL IF YOU WANT THE MOST FROM YOUR 64! SUPPLIED ON 1541 DISK WITH EXCELLENT TUTORIAL/REFERENCE MANUAL PLUS AUDIO LEARNING TAPE...

OUR PRICE ~~£99.95~~ £88.00

Jetpack

YOUR PROGRAMS WILL REALLY TAKE OFF WITH DTL JETPACK 64! 100% COMPATIBLE WITH CBM BASIC, JETPACK COMPILES BASIC PROGRAMS INTO MACHINE CODE, RUNNING UP TO 25 TIMES FASTER... AND USING UP TO HALF AS MUCH MEMORY, TO GIVE FASTER LOADING, OR BIGGER PROGRAMS! AND IT EVEN ACCEPTS BASIC EXTENSIONS AND MACHINE CODE ROUTINES AS WELL!

OUR PRICE (DISK) ~~£39.95~~ £35.95

Master 64

HAS EVERYTHING YOU NEED FOR PROGRAMMING TO TOP PROFESSIONAL STANDARDS! BASIC IV, MACHINE CODE MONITOR, AND 85 POWERFUL NEW COMMANDS... INCLUDING TOOLKIT, BUSINESS BASIC, KEYED ACCESS FILES, DISK DATA COMPRESSION, FORMATTABLE SCREEN ZONES, MULTIPLE SCREENS, DATE CONTROL, REPORT GENERATOR, 22-PLACE ARITHMETIC, SCREEN PLOT, SCREEN DUMP, AND MORE...

ALL FOR ONLY £64.95!

VIZAWRITE 64

VIZAWRITE 64 IS A HIGH-PERFORMANCE, LOW-COST WORD PROCESSOR WITH ON-SCREEN FORMATTING, THAT TAKES FULL ADVANTAGE OF THE 64'S COLOUR, GRAPHICS AND MEMORY FEATURES... AND SUPPORTS VIRTUALLY ANY PRINTER! WITH A COMPREHENSIVE AND EASY-TO-FOLLOW USER REFERENCE MANUAL, VIZAWRITE IS THE ULTIMATE PERSONAL COMPUTER WORD PROCESSOR! AVAILABLE ON CARTRIDGE (~~£89.95~~ £78), DISK (~~£79.95~~ £68) OR WITH VIZASPELL (~~£99.95~~ £85)

*** WANT IT TOMORROW? *** CALL US TODAY! *** ON 01-546-7256

VIZASTAR	(DISK)	~~£99.95~~ £89.00	MULTIPLAN (US)	(DISK)	~~£79.95~~ £67.95
VIZASPELL	(DISK)	~~£59.95~~ £49.95	PRACTICALC	(DISK)	~~£44.50~~ £39.95
EASYSCRIPT	(DISK)	~~£75.00~~ £65.00	PRACTICALC	(TAPE)	~~£39.95~~ £34.95
EASYSPELL	(DISK)	~~£50.00~~ £41.95	HOMEBASE 1-4	(SUPERBASE)	£17.95
SIMON'S BASIC	(CART)	~~£50.00~~ £41.95	STEPPING STONES	(SUPERBASE)	£9.95
FIGARO 64	(DISK)	~~£86.25~~ £75.00	PRINTLINK 64	(INTERFACE)	£29.95

PRICES INCLUDE 15% VAT AND ARE CORRECT ON GOING TO PRESS. ORDER BY POST OR PHONE, USING CHEQUE, ACCESS/BARCLAY CARD OR OFFICIAL ORDER. DESPATCH IS BY SAME-DAY 1ST CLASS POST, PRE-PAID ORDERS FREE. PRODUCT DATA AVAILABLE ON REQUEST. REF A31

Access VISA

Calco Software

LAKESIDE HOUSE, KINGSTON HILL, SURREY, KT2 7QT. TEL 01-546-7256

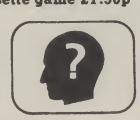
Anger Productions — CBM 64 Software

FLIGHT SIMULATOR Original for 64!
Pilot your aircraft to the airport of your choice in U.K. Recall your position on the map at any time during your flight and experience the thrill of take off, flight and landing
Joystick preferable
Cassette game £9.95p

YANTZEE
Play this very skilful old Chinese dice game, either by yourself or with your family and friends. (Up to 4 players) Great family game for Xmas.
Cassette game £7.50p

PLAY GOLF
Take up the challenge to play Golf on this 18 hole par 72 course. Play to full PGA Rules and learn the game or improve your handicap at home.
Cassette game £7.50p

DISCOVER YOUR IQ
Complete our tests and evaluate your verbal, numerical, spacial and perceptual abilities in relation to Mr. Average.
Cassette game £5.45p



Order any 2 games and receive our excellent ASSEMBLER **FREE** worth £6.95p

Help yourself to learn how to write, read and copy your own machine code programs

LIFETIME REPLACEMENT GUARANTEE
To order just complete the coupon and mail it to us with your remittance.

Name.....
Address.....
.....
.....

Flight	£9.95 ☐
Golf	£7.50 ☐
Yantzee	£7.50 ☐
Assembler	£6.95 ☐
I.Q.	£5.45 ☐

Any combination of programs available on Disk £2 extra ☐

ANGER PRODUCTIONS 14 The Oval Broxbourne Herts. EN10 6DQ

NOW EVEN MORE WONDERFUL!!

For Commodore 64 with a 1541 Disk Drive

WOW!

MPS TOOLKIT Mk2.

- **Single Drive 3-Pass Disk Backup** — or individual tracks.
- **File Copy** — transfer any number of files at once, up to 232 blocks long.
- **Disk Error Locator** — also checks for proper header, DOS, ID's & catalog, with printer option.
- **Disk Error Maker** — makes 20,21,22,23,27 & 29 ERRORS, necessary for proper backup of protected disks.
- **Disk Drive Monitor** — address the drive's internal ROM & RAM.
- **Disk Doctor** — dozens of uses, read and change sectors, recover lost data.
- **Disk Log** — displays all files on a disk, including start & end address, beginning track and sector, with printer option.
- **Auto Run Maker** — make your programs auto-run, and create your own loading screens.
- **Loading Address Relocator • Disk Test.**
- **File Recovery • Compactor • File Protect.**
- **Plus Much More!**

Beware of imitations! MPS TOOLKIT is by far the best disk utility available in the U.K. Comes complete with instructions. and is fast & easy to use.

ONLY £17.95 inc p/p

Foreign orders, please add £1.00

Send cheque or P.O. to:
MPS SOFTWARE
36 ALEXANDRA GROVE, LONDON N4 2LF
01-800-3592

PLUGGING INTO EPSON

The Comprint Epson/Centronics interface reviewed

by Chris Durham

Commodore users have always mourned the fact that only a Commodore printer will plug straight into their computer. Using a non-Commodore model means buying an interface adaptor. But which do you choose? It might be easier if there was a special interface available for the printer you want to buy. Like the Comprint interface from Micro Control Systems, especially designed for a Commodore 64 and an Epson or Epson-compatible dot matrix printer. At £61.99 it's not cheap but it allows you to use that coveted Epson. Chris Durham plugged in and used it to write this report.

Interfaces for non-Commodore printers have been around for almost as long as the computers they work with; for the simple reason that Commodore home computers use a non-standard method of serial communication for their printers. The common standard for most cheap printers is Centronics parallel, with RS232 serial coming a more expensive second. While the new Commodore printers are catching up on the quality and value for money at the lower end of the market, there's always been a demand for interfaces that would allow 'near letter quality' (NLQ) dot-matrix printers such as the Epson to be attached to the Commodore home computers, particularly for use with wordprocessing programs.

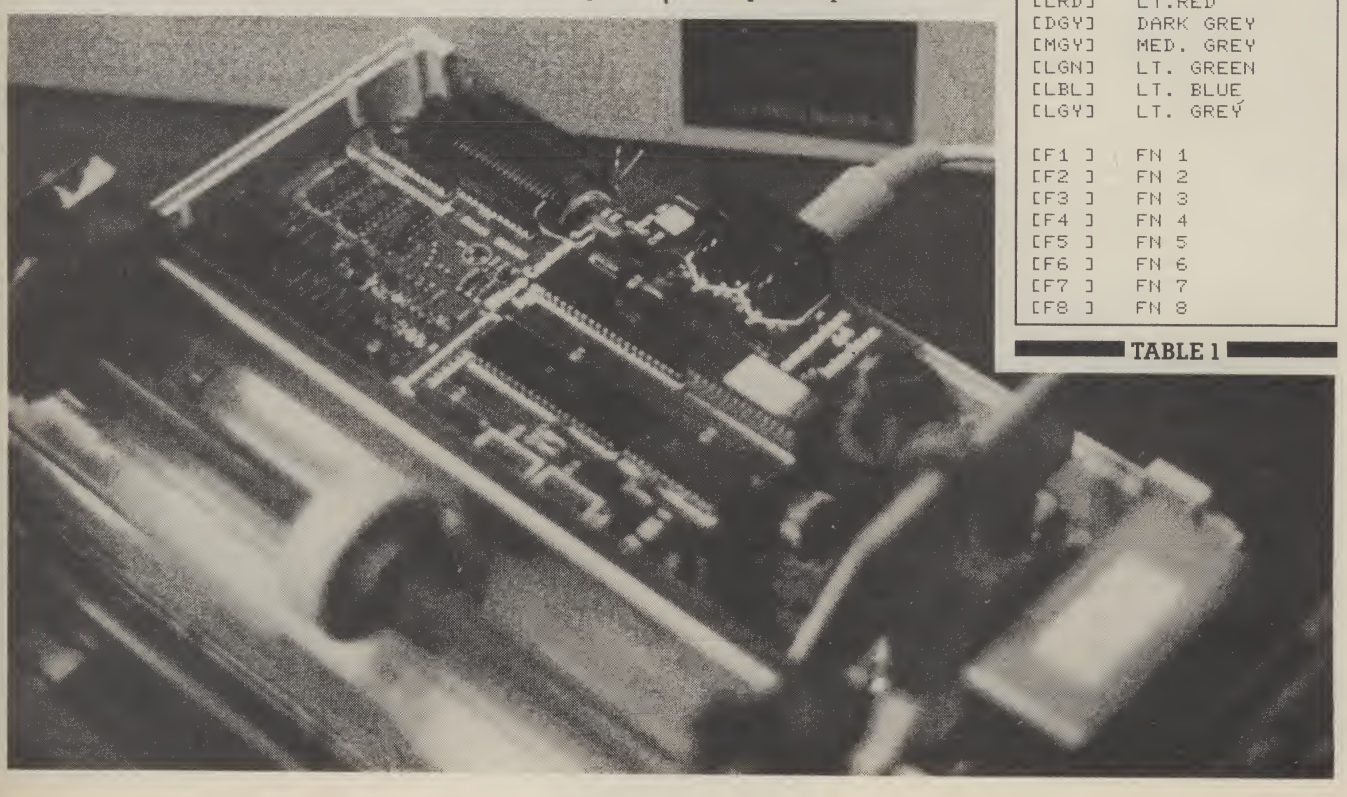
The early devices merely did the character conversion necessary, without allowing the user to print the Commodore character set. Later models actually allowed the Commodore character set to be printed, including the 'reversed graphics' that represented the control codes. Now, we have interfaces that not only do all this, but convert the control codes into readable strings, make the printer act either like itself or as a Commodore printer and even allow you to preset 'format strings' which determine how lines are printed. Such a beast is the **Comprint** interface from Micro Control Systems.

Comprint — the hardware

It is designed to fit inside an Epson (or compatible) printer, with just a single Commodore DIN-plug lead connecting it to the computer; in other words exactly the same as a Commodore printer. Not only that, but it has **two** serial port sockets, enabling you to connect a second printer/plotter without

[WHT]	WHITE
[RED]	RED
[CYN]	CYAN
[PUR]	PURPLE
[GRN]	GREEN
[BLU]	BLUE
[YEL]	YELLOW
[RVS]	REVERSE ON
[RVO]	REVERSE OFF
[HOM]	HOME
[CLR]	CLEAR
[INS]	INSERT
[CUD]	CURSOR DOWN
[CUP]	CURSOR UP
[CUR]	CURSOR RIGHT
[CUL]	CURSOR LEFT
[CUL7]	MULTIPLE CODES
> <ONE SPACE	
> <FIVE SPACES	
>[SPC6]<SIX SPACES	
>[SPC10]<TEN SPACES	
[ORG]	ORANGE
[BRN]	BROWN
[LRD]	LT.RED
[DGY]	DARK GREY
[MGY]	MED. GREY
[LGN]	LT. GREEN
[LBL]	LT. BLUE
[LGY]	LT. GREY
[F1]	FN 1
[F2]	FN 2
[F3]	FN 3
[F4]	FN 4
[F5]	FN 5
[F6]	FN 6
[F7]	FN 7
[F8]	FN 8

TABLE 1



PLUGGING INTO EPSON

difficulty (even Commodore themselves don't do that). Fitting the board inside the printer means that you have to remove the top as the board must be screwed into the slot provided. This is not a difficult operation, provided you follow the instructions.

The only slight problem with fitting the board inside the printer is that this is where many of the print buffers fit as well; so if you already have a printer buffer, whether internal or external, you won't be able to use it with Comprint. I understand that Micro Control Systems intend to produce a version which includes its own buffer (up to 32K), which should help solve the problem. The existing board already includes a 2K print buffer, emulating the one on the *Epson FX-80*. This is good news for those of you with the *RX-80* or the earlier MX series, since this means that you can now get downloadable characters as well. Since you already get the Commodore character set in full you can use this facility for all sorts of other characters.

On the Comprint board itself are three 'jumper' plugs, which determine which mode the board is in when it powers up. Unfortunately these are on the left-hand side of the board. Since the Epson has a removable cover on the right hand side of the printer you cannot alter the jumper connections without taking the top off the printer each time. The suppliers have said they are considering moving the jumpers to the other side to allow access through the Epson 'hatch'. Although the modes can be changed through software, this is not possible if you use a cartridge-based word-processor so it is worth making sure you set the board up in the straight-through mode from the start. This allows printer control codes etc, to be passed without getting converted. The other modes are to allow different Epsons to emulate the corresponding Commodore printers; eg mode 2 is for the *MX-100, RX-100* and *FX-100* and allows the full width of the paper to be used.

Hardware hiccups

As with all non-Commodore products, there always tends to be a little unforeseen hitch and Comprint is no exception. You cannot have the interface connected unless *all* the devices on the serial bus are switched on. This may seem a small point, and will probably not affect many people, but if I am doing a quick test of something on the computer I don't always bother to switch on the disk drive if I don't need it. Under these conditions, with Comprint connected, the computer will not power up correctly; switching the disk drive on *after* the computer causes a reset, ignoring any cartridges that are connected.

Thus if you want to run a cartridge program or a game, either unplug the printer connection or ensure everything else is switched on first. However, it is not even this simple, because if you switch off your printer (to set the 'top of page' for example) and then turn it back on again it also causes the computer to reset — losing all the text in your WP unless you had already saved it. I know, because it happened to me. This is potentially more serious and needs looking at by the manufacturers.

The software

The great advantage of this sort of interface is that there is no software to load or run before you can use the printer; it is all contained in a ROM on the board itself. The interface is in reality a self-contained, dedicated computer with its own 6502 processor, enabling it to do all the fancy things that it does. The ROM contains the control program for the whole process. This means that when the manufacturers come up with a new idea they only have to change the ROM and you have instant new facilities. This was graphically illustrated when I received a new ROM halfway through the review which added the facility to print out the control codes in listings, an option previously lacking on Comprint.

The facilities are all controlled by 'secondary addressing'. Those of you who have used Commodore printers will know that this is a way of sending additional information to the printer when you open a print channel; for example **OPEN4,4,7** opens a Commodore printer in lower case mode, where '7' is the 'secondary address'.

TABLE 2

0	— Print data as received (default option)
1	— Print data according to a previously defined format
2	— Send format string
3	— Set number of lines per page
4	— Enable diagnostics
5	— Define programmable character
6	— Set spacing between lines
7	— Set default character set to lower case
8	— NOT USED
9	— Suppress diagnostics
10	— Reset printer
11	— Change printer type (change mode)
12	— Enable control code conversion
13	— Disable control code conversion

Comprint uses a similar syntax, but unfortunately the method is not always the same. Under normal circumstances you would continue printing on the channel that you opened until you had finished, but Comprint is different in that some 'channels' are for commands only; you can't send any text on them.

Thus **OPEN12,4,12: PRINT#12: CLOSE12** sets the 'control code conversion' mode; you still have to send the listing on logical channel 4, for example, **OPEN4,4: CMD4: LIST**. *Table 1* shows the control code conversions (just what you need for Victuals). *Table 2* shows all the facilities available on the secondary addresses. There is even an option (4) which will tell you what the errors are if you make a mistake in the other commands — very clever!

The format control is worthy of mention. This allows you to preset the form that a printed line will take, both numeric and textual. It can be used to set up columns of figures, truncate strings to the same size, format a date correctly or even produce leading and trailing zeros in a number. Characters can be included in the format that are added to the text received from the computer — all in all, very impressive.

The instructions

With such a wide range of commands it is vital that the instructions allow the user to get maximum benefit from the interface. While some of the facilities were clearly explained, others were passed over with little explanation and no examples. The new commands, using secondary addresses 12 and 13, were on an Addendum sheet that was very unclear. However, I am assured that the new instruction book will be much clearer and will include more examples. The only way to really get to know what this beast will do is to try out all the examples and options. It won't be a quick trial, there's far too much to learn, but once you have mastered the facilities, there seems little you won't be able to do.

Conclusions

This is one of the most versatile printer interfaces I have used. It offers a wide range of facilities which include printing the full Commodore graphics set, converting the control codes to meaningful strings and being able to format the printed output as you wish.

With your Commodore computer, your Epson printer and Comprint you will have a combination that will do almost anything you ask of it. For those who do not own an Epson, Micro Control hope to market versions for other printers too. At £61.99, I consider it good value for money. My one proviso is that the problem of resetting the computer when anything on the serial bus is turned on needs looking at.

Micro Control Systems
1 Cherrywood Drive,
Aspley,
Nottingham NG8 3NN
0773 769011

Comprint CMB/Epson printer interface

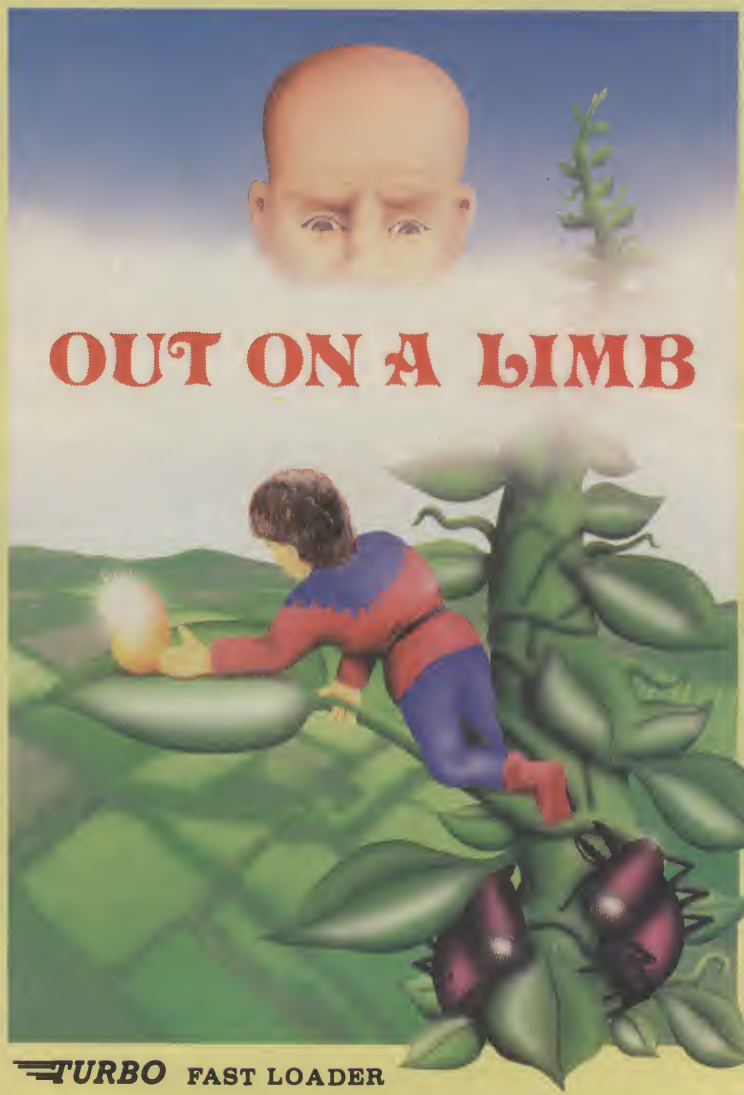
£61.99 (incl VAT)

COMMODORE C16 AND PLUS 4

LAS VEGAS

MOON BUGGY

FLIGHT PATH



ZODIAC

3D TIME TREK

SKRAMBLE

TURBO FAST LOADER

LAS VEGAS Las Vegas brings all the challenges of a deluxe arcade fruit machine direct to your fingertips. Many exciting features include, gamble, cancel, collect, nudge and number options, with a three row display and maximum payout of 20$.
K.B. Only C.16 £6.95

ZODIAC This is an enthralling arcade adventure in which the evil powers of hell have scattered the signs of the Zodiac in the four hundred chambers of the abyss. Struggle to collect these signs and at the same time try to annihilate everything in your way. How long can you stay alive?
J.S. or K.B. C.16 £6.95

PETCH Race Petch around the screen, moving ice blocks to alter the maze, however, beware of the nasty monsters who are constantly chasing Petch as you attempt to collect the bonus cherries. Also if you can touch the edge of the maze the monsters will suddenly burst into flames, but look out they'll soon be back!
J.S. or K.B. C.16 £6.95

MOON BUGGY You must skillfully manoeuvre your jumping patrol vehicle over dangerous moon craters as well as large boulders and cunningly placed mines. Not only this but avoid the hovering alien spaceship as it bombards you from above.
J.S. or K.B. C.16 £6.95

3D TIME TREK As sole survivor of the planet "Corillian" your quest is one of anger and revenge. The starship you are flying is full of the latest inboard computers and extra powerful sensors. Also included are full 3D graphics, to add unbelievable realism to this fantastic journey through time itself, and beyond.
J.S. and K.B. C.16 £6.95

SKRAMBLE Earth has been overrun by the Cobrons and its up to you to battle through the six ferocious and testing sectors. Adversaries include meteors, UFO's and deadly fireballs. Fly through an armoured city, then an elaborate maze and finally the command base itself.
J.S. or K.B. C.16 £6.95

FLIGHT PATH Flight Path is without doubt the best flight simulator on the C/16 and Amstrad. The many elaborate features include; Altometer, flaps, directional headings, crosswinds, fires, ground warning lights and reverse thrust to name but a few. Also included are smooth graphics as you take off, cruise over mountains, and land once again.
J.S. and K.B. C.16 £6.95

OUT ON A LIMB This is a fantastic and in parts outrageously funny game. Based on the fairytale of Jack and the Beanstalk, Out On A Limb is full of the most strange and eccentric characters you are ever likely to meet. Firstly, climb the stalk and jump onto the clouds, then enter the giant's castle searching for treasures. However, watch out for vacuum cleaners, musical notes, televisions and potted plants, all of which chase you round the many and elaborate rooms of the castle. Once the treasure is collected the single exit will be opened, and then.....?
J.S. or K.B. C.16 £6.95

ANIROG

Mail Order: 8 HIGH STREET HORLEY SURREY 24 HOUR CREDIT SALES HORLEY 02934 6083 Payment by: P.O. - ACCESS - VISA

AVAILABLE FROM YOUR COMPUTER STORE

COMMODORE 64

OXFORD PASCAL

YOUR FUTURE WITH COMPUTERS DEPENDS ON PASCAL

BECAUSE

- PASCAL is the world's most popular programming language after BASIC
- PASCAL is FAST up to 20 times the speed of BASIC

WHAT IS OXFORD PASCAL?

OXFORD PASCAL is a COMPLETE implementation of the popular programming language PASCAL running on the Commodore 64

GRAPHICS & SOUND

With the OXFORD extensions to PASCAL you can programme dazzling graphics and astounding sound

WHAT DO I GET?

With the cassette version of OXFORD PASCAL you get

- A powerful text editor for preparing PASCAL programs
- A resident compiler giving 14k of user RAM
- A powerful set of colour graphics and sound extensions to standard PASCAL

With the disk version of OXFORD PASCAL you get:

- All the above. PLUS
- A full disk to disk compiler exploiting the entire memory of the 64 for PASCAL programs.

HOW MUCH DOES OXFORD PASCAL COST?

Cassette version (resident compiler only **£19.95**
Full disk compiler (1541, 4040, 8050, 8250 drives) £49.95
Prices are exclusive of VAT. There is also a small charge for post and packing.

Oxford Computer Systems (Software) Ltd
Hensington Road,
Woodstock,
Oxford OX7 1JR, England
Telephone (0993) 812700
Telex 83147 Ref. OCSL

FOR CONNOISSEURS

OF MODERN LANGUAGE LEARNING

COMMODORE 64 ● BBC (32K) ●ELECTRON ● SPECTRUM (48K)

Dealers, contact Lightning, Proteus, Centresoft, Microdeal or Tiger.

All titles are immediately available from good computer stores or by 24-hour mail order. Price £8.95 (overseas orders add £1)

For beginners, O-level and beyond, these best-selling programs are unique and highly successful aids to language learning. Each cassette provides a comprehensive series of vocabulary lessons and a variety of self-paced learning and test modes. All accents and special characters are clearly displayed and different colours denote masculine, feminine and neuter words to reinforce gender learning.

The create command enables new lessons in vocabulary or grammar to be entered, edited as required, then saved on tape. By using this simple yet vital feature, homework lists and exam revision can be retained indefinitely and recalled on demand.

Two cassettes are available for each language, covering thousands of words; Level A provides 16 lessons in general vocabulary; Level B provides a further 16 lessons including adjectives, adverbs and fully conjugated verb lists.

KOSMOS SOFTWARE

● TELEREF 126

KOSMOS SOFTWARE LTD 1 Pilgrims Close, Harlington, DUNSTABLE, Beds. LU5 6LX Tel: (05255) 3942

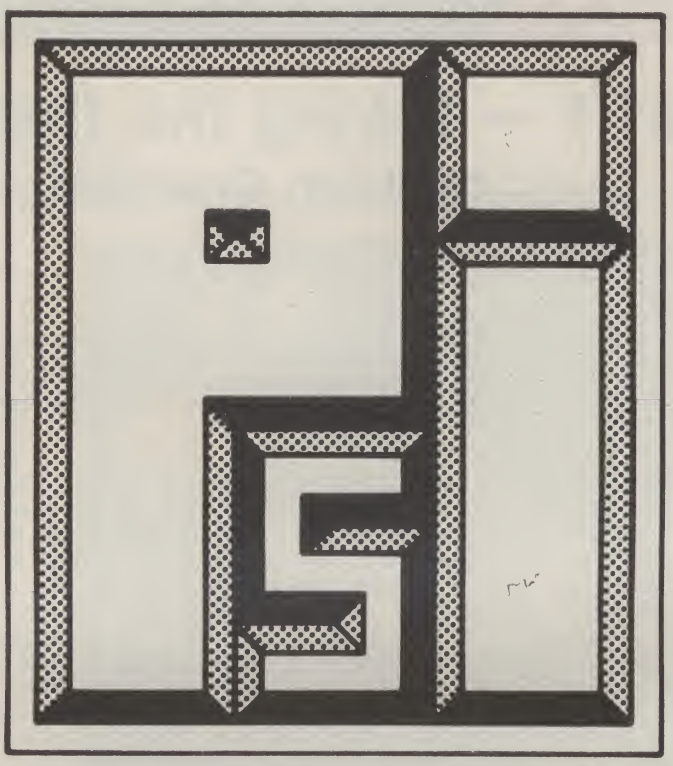
The French Mistress	Level A @ £8.95 ☐	The French Mistress	Level B @ £8.95 ☐	Computer type	(Commodore 64/BBC/Electron/Spectrum)
The German Master	Level A @ £8.95 ☐	The German Master	Level B @ £8.95 ☐	Mr/Mrs/Miss	
The Spanish Tutor	Level A @ £8.95 ☐	The Spanish Tutor	Level B @ £8.95 ☐	Address	

KOSMOS SOFTWARE LTD.
1 Pilgrims Close, Harlington, DUNSTABLE, Beds. LU5 6LX.

Postcode

BEYOND

CHALLENGING SOFTWARE



WARRIOR

ORIGINALITY **10** • ORIGINALITY **10** • ORIGINALITY **10** • ORIGINALITY

GRAPHICS **10** • GRAPHICS **10** • GRAPHICS **10** • GRAPHICS **10** • GRAPH

SOUND **10** • SOUND **10** • SOUND **10** • SOUND **10** • SOUND **10** • SOU

LASTING INTEREST **10** • LASTING INTEREST **10** • LASTING INTEREST

ANIMATION **10½** • ANIMATION **10½** • ANIMATION **10½** • ANIM

OVERALL **11** • OVERALL **11** • OVERALL **11** • OVERALL **11** • OVERALL **11** •

COULD IT EVER HAPPEN?

Part 1 — taking the first steps

by Brian Grainger

Did you get a new Commodore computer for Christmas? Have you owned a computer for some time but use it only for playing games? Maybe you think it's time you started programming? This is the start of a four-part Basic tutorial for the absolute beginner, taking you gently through the basics of Basic. This month Brian Grainger shows you how to write a simple program to produce a message on the screen and some graphics. So let's get going . . .

Remember the day you opened the box of your brand new Commodore computer? You plugged it all together with your TV and turned it on. The first thing you probably did was to load a program from the cassette given or bought with the machine and ran it. This is the first time you have used a computer program.

It may have been the latest game, a drawing program or something educational. Whatever it was, each of these different programs gets the computer to work in a different way. It is this that makes a computer such a useful thing.

In the past you bought a game, like Monopoly, played it a while, got tired of it and shoved it in the cupboard. There may be a typewriter in your home for writing letters but it does nothing else but write letters. Your computer can do all these things. It's the program which allows you to choose what it does.

The purpose of this series is to teach you how to write your own programs and get your computer doing what you want, so it will never join the Monopoly in the cupboard.

"write your own programs and get your computer doing what you want"

What is a program?

What is a program? Let's consider a simple everyday function like watching the telly. You may not realise it but you're probably going through the following steps to do this simple task:

- look at the paper to see what's worth watching, and make a choice
- turn the television on
- select the right channel
- if the volume is too loud or too soft then change it
- watch the programme
- keep watching the programme until it is finished, or it's time for Dallas
- if you want to watch something else then go back to selecting the channel
- if you do not want to watch anything else then switch the television off.

The above is a set of instructions to tell you how to watch the television. I could just as easily have given another set of instructions to tell you how to get up out of bed and prepare yourself for school or work. In other words, you're following different sets of instructions for different tasks. Just like the computer.

A computer program is simply a set of instructions to tell the computer how to do a particular task. Like the example above, the instructions are performed in sequence

unless the result of answering a question, for example, means that we must jump to another point in the sequence.

The Basic language

Let's consider another point. If I gave the above instructions to a French person and told him to carry them out, he probably wouldn't know what to do because he did not understand English. So for him to understand I would have to write the instructions in French, *a different language*.

The same applies with computer programs. The instructions have to be written in a language the computer understands. When you turn on your Commodore computer the language it understands is called BASIC.

There is another point in common between the languages understood by people and those understood by computers. People from, say, London will speak the same English as people from Newcastle. But one will sometimes use 'slang' or dialect words that the other won't understand. The problem is that although the language is the same, the dialects are different! The same thing happens with Commodore computers. Although they all understand BASIC, there is a different dialect used by the Commodore 16 to that used by the Commodore 64. Certain words in Commodore 16 BASIC, such as HELP or PAINT, will not be understood by the Commodore 64. Throughout this series we shall only use the 'words' understood by all Commodore computers.

The person who writes the program of instructions which the computer will understand and act upon is the programmer. Let's set about the task of writing programs so that you become a programmer straight away.

Programming starts here

Here is a simple one line program. Type it into your computer carefully. If you make a mistake use the 'DEL' key to delete what you typed and then type the correct letter.

PRINT "I AM A COMMODORE COMPUTER"

When you are sure it is right press the 'RETURN' key. All lines of program are sent to the computer only when the 'RETURN' key is pressed. I won't mention this point every time. Just remember to press the 'RETURN' key after every line. You should see the following displayed on the screen.

I AM A COMMODORE COMPUTER

READY

We can see that the computer has done what the line of program said. It has printed the words inside speech marks on to the screen. Having completed the program it then says READY to tell you that it is ready for your next instruction.

Now for a real program

Let's suppose we want to print on the screen the following:

HELLO
I AM A COMMODORE COMPUTER

But hold it, we could NOT type the following lines from the keyboard:

PRINT "HELLO"
PRINT "I AM A COMMODORE COMPUTER"

Try it and you can see why not. Each time the RETURN key is pressed the computer prints the words and then says READY. But we don't want READY to get between the two lines. We want the computer to remember the instructions that it is given and only carry them out when we tell it to. We need a way of storing the instructions without being obeyed and we do that by giving each instruction a line number, like this:

10 PRINT "HELLO"
20 PRINT "I AM A COMMODORE COMPUTER"

When the line is sent to the computer this time nothing happens. The flashing cursor comes back for you to type the next line. But the computer has remembered the lines, as you can see if you type LIST. That's another command you've learned, it lists all the lines of a Basic program you have stored in memory.

Here's another command: when we want the computer to obey the instructions that it has remembered, or stored in its memory to give the technical term, we tell the computer to run the program. Just type RUN. That makes the computer carry out the instructions in the order given by the line numbers, starting with the lowest. In this case it will obey line 10 and then line 20 so we will get:

HELLO
I AM A COMMODORE COMPUTER

You may be wondering why I chose the numbers 10 and 20, rather than 1 and 2. Suppose we had written the above program and then we decided we wanted the computer to appear friendly. Suppose we want to ask for the name of the person who runs the program, BRIAN say, and then print HELLO BRIAN.

The INPUT command

First we want an instruction to ask the user to input his or her name and we want to do this *before* we print HELLO. By adding the following program line we can do this:

5 INPUT "WHAT IS YOUR NAME";NA$

When this instruction is obeyed the computer will print on the screen the message 'WHAT IS YOUR NAME?' and the flashing cursor will wait for you to type it in. When you have typed it in (and pressed RETURN) the computer will store it in a 'box' which the computer has labelled **NA$**. It does this so we can refer to the contents of the 'box' at any time.

Because we have given the new line a number 5 it will be obeyed before line number 10 which is what we want. If the first line of the original program had been 1 we would not have been able to choose a lower number of the new line.

Now what we need to do is to revise the program so that the computer will print the

"First we want an instruction to ask the user to input his or her name . . ."

TOP TEN
IN
EDUCATIONAL SOFTWARE

FOR THE

COMMODORE 64 or VIC 20
ONLY £4.95 EACH

(1) PHYSICS O LEV/CSE
(2) BIOLOGY O LEV/CSE
(3) MATHS CSE
(4) COMPUTER STUDIES O LEV/CSE
(5) MATHS 12/14 YRS
(6) SCIENCE 12/14 YRS
(7) MATHS 8/11 YRS
(8) ARITHMETIC 7/10 YRS
(9) REASONING 11+
(10) KNOWLEDGE 9/99 YRS

Immediate delivery by First Class Post

MICRO-DE-BUG CONSULTANCY
DEPT. CU. 60 SIR JOHNS ROAD
SELLY PARK, BIRMINGHAM B29 7ER
TEL. 021-472 7610
(Please state computer)
Written and produced by Qualified Educationalists.

Superbase 96 THE COMPLETE INFORMATION STORAGE AND CONTROL SYSTEM, SUPERBASE 96 TRANSFORMS COMMODORE MODEL 8096 OR 8296 INTO A FULL-FEATURED, PROFESSIONAL DATABASE SYSTEM! WITH UP TO 1100 CHARACTERS PER RECORD ON UP TO 4 SCREENS... AND UP TO 126 ITEMS PER RECORD, DEFINABLE AS KEY, TEXT, NUMERIC, CONSTANT, RESULT OR DATE... IN FILES OF UP TO 16M CHARACTERS! WITH SPREADSHEET AND CALCULATOR CAPABILITY, CALENDAR FUNCTIONS, MULTIPLE CRITERIA SORT AND SEARCH, EASY INPUT FROM WORDPROCESSOR/DATA FILES, BOTH MENU-DRIVEN AND PROGRAM OPTIONS, BATCH AND TRANSACTION PROCESSING, FULLY DEFINABLE OUTPUTS... SUPERBASE 96 IS ESSENTIAL IF YOU WANT THE MOST FROM YOUR COMMODORE! SUPPLIED ON 8050/8250 DISK, WITH EXCELLENT TUTORIAL/REFERENCE MANUAL. OUR PRICE ~~£454.25~~ £375.00!

Superscript II SUPERSCRIPT II HAS ALL THE FEATURES YOU EXPECT FROM A PROFESSIONAL WORDPROCESSOR SYSTEM... AND THEN MORE! UNRIVALLED 240-COLUMN TEXT HANDLING, VARIABLE WIDTH SCREEN, FOUR-WAY SCROLLING OVER 2100 LINES, DOCUMENT LINKING FOR UNLIMITED CAPACITY, GLOBAL SEARCH AND REPLACE, FULL MEMORY CALCULATOR, ROW AND COLUMN ARITHMETIC, BACKGROUND PRINTING AND COMPLETE LETTER-QUALITY PRINT CONTROL MAKE SUPERSCRIPT THE ULTIMATE WORDPROCESSOR FOR THE CBM 8096/8296... AND IT SPELLS TOO! SUPPLIED ON 8050/8250 DISK. OUR PRICE ~~£454.25~~ £375.00!

Master THE COMPLETE PROGRAM DEVELOPMENT PACKAGE FOR THE COMMODORE 8096/8296, USED BY BOTH NOVICE AND PROFESSIONAL PROGRAMMERS. MASTER ADDS 85 NEW COMMANDS TO BASIC INCLUDING 72K MEMORY MANAGEMENT, PROGRAMMER'S TOOLKIT, BUSINESS BASIC, KEYED DISK ACCESS, MULTIPLE SCREENS WITH USER-DEFINABLE INPUT ZONES, REPORT GENERATOR, 22-PLACE ARITHMETIC, DISK DATA COMPRESSION, DATE CONTROL, SCREEN PLOT, SCREEN DUMP, AND MORE... EVERYTHING YOU NEED FOR PROGRAMMING TO TOP PROFESSIONAL STANDARDS! WITH COMPREHENSIVE INDEXED USER MANUAL, QUICK REFERENCE CARD AND DEMOS. OUR PRICE ~~£339.25~~ £225.00!

*** WANT IT TOMORROW? *** CALL US TODAY! *** ON 01-546-7256

8032 TO 8096 UPGRADE	~~£345.00~~	£287.50	SUPEROFFICE 8096/8296	~~£799.25~~	£650.00
PM96 8096/8296	~~£114.53~~	£86.25	SUPERSCRIPT 4032/8032	~~£286.35~~	£225.00
VISICALC 8096/8296	~~£228.85~~	£195.50	SUPERSPELL 4032/8032	~~£172.50~~	£135.00
DTL COMPILER	~~£114.53~~	£109.00	SUPERSCRIPT 700	~~£517.50~~	£425.00
MASTER 700		£339.25	SUPERBASE 700	~~£517.50~~	£425.00

PRICES INCLUDE 15% VAT AND ARE CORRECT ON GOING TO PRESS. ORDER BY POST OR PHONE, USING CHEQUE, ACCESS/BARCLAY CARD OR OFFICIAL ORDER. DESPATCH IS BY SAME-DAY 1ST CLASS POST, PRE-PAID ORDERS FREE. PRODUCT DATA AVAILABLE ON REQUEST. REF A29

Calco Software

LAKESIDE HOUSE, KINGSTON HILL, SURREY, KT2 7QT. TEL 01-546-7256

POWERFUL UTILITIES FOR YOUR "64"

THE BEST RANGE OF UTILITIES FOR THE 64. WRITTEN BY PROFESSIONALS—SOLD BY PROFESSIONALS

Two important NEW programs

QUICKDISC
Incorporating Menu Maker

Speed up your 1541 disc drive with this **new** program. Loads most programs at **more than double** the normal speed. A flexible package that allows you to incorporate a **menu and fast loading** on **your own discs**. Also includes a file exchanger for programs put on disc with **"Disco"** (**THE** tape to disc utility), another way of making fast load disc programs. A **must** for all disc drive users.

ONLY £11.95

DOUBLER
Tape Back Up Device

Includes **hardware and software**. This **amazing** new cassette port adaptor allows you to make back up copies of **"turbo" software**. Tests have proved **100% successful**. Requires access to two cassette decks. The special software generates a **brand new machine copy** onto one deck while loading from the other. **Fast and reliable**, they said it couldn't be done.

ONLY £12.95

FASTBACK
Fast Load Utility

Convert your slow loading software to **high speed load** with Fastback. The **most sophisticated** program of its type allows you to produce **"turbo"** loading versions of most single and **multipart** software that load **independantly** of Fastback. **Simple** to use **no programming skill needed**. Example: Load "The Hobbit" or "Manic Miner" in **150 secs**. Tried and trusted (over 2000 sold).

A very professional program.

ONLY £9.95

DISCO
THE TAPE TO DISC UTILITY

We **guarantee** that this is the **best** tape to disc utility on the market. **Very easy to use no programming knowledge needed**. Automatically handles device numbers and multi part programs. Programs **auto load** and **run** once transferred and can also be made to **fastload** with **Quickdisc**. Handy for making your own disc programs auto run.

ONLY £9.95

DISC DISECTOR

At last a **really powerful** disc copier and utility program. Incorporates a range of powerful programs. Includes **"Fastcopy"** takes just **four minutes** to read and write a **whole disc**. **"Error copy"** automatically reads and writes **all** error types, now you can make a security back up of those expensive business programs. **"Quickdisc"** more than **halves** disc loading time, **very** useful **"File copier"** allows **selective** copying from directory. **"Track & Sector"** a slower but very thorough program. Also includes the following useful utilities, **Menu maker**, **Index**, **Retitle**, **Rename**, **Scratcher**, **Disc to Tape** and **Tidy**. If you have a 1541 you **must** have Disc Disector. Supplied on disc with full instructions.

ONLY £29.95

COMMODORE CONNEXION

Connect **any** "Centronics" type printer to your '64. Price includes lead and software on cassette **with** special disc conversion program.

Simple to use and very reasonably priced.

ONLY £14.95

ROCKET

Fed up waiting for programs to load and save? Rocket is a utility for the programmer, speeds up loading and saving by about **8 times** while still allowing for normal speed operations. **Does not** affect the speed of BASIC as no wedge is used. Programs can also be saved with high speed system to **reload independantly**. A must for serious programmers who have no disc drive.

ONLY £7.95

BIGMOUTH

The **superb** new **speech synthesis** program for the '64. Uses "speak" as a basic command. **Very easy to use**. Can be incorporated into your basic programs. Words are entered in phonetic English, ie. spelt as they sound. Therefore vocabulary is **unlimited**. **Great fun** and good for educational purposes.

ONLY £7.95

TAPER

A powerful utility. Works with almost all normal speed software.

ONLY £5·95

3M SCOTCH DISCS S.S.D.

£16·00

LIFETIME GUARANTEE BOX OF TEN

DATA RECORDER

A **dedicated** data recorder designed for use on the CBM 64 or Vic-20. Specification as C2N but **with pause button.** Model available for the PLUS4 or 16 at same price.

SATISFACTION GUARANTEED.

ONLY £29.95

HUGE RANGE OF SOFTWARE & BOOKS FOR BBC, ELECTRON, SPECTRUM, COMMODORE 64, VIC 20, ORIC, DRAGON, MEMOTECH & ZX 81

Trade and Overseas Orders welcome.
All prices inclusive. Send Cheque, P.O., Bank Draft or phone your Card Number to 0386 49641.

ACCESS BARCLAYCARD VISA

MICRO CENTRE
BRIDGE STREET, EVESHAM, WORCESTERSHIRE
Tel: 0386 49641

MICRO CENTRE
1756 PERSHORE ROAD, COTTERIDGE, BIRMINGHAM.
Tel: 021-458 4564

name given after the word HELLO. First of all change line 10 as follows:

10 PRINT "HELLO";

You can do this by typing **LIST 10**, and then moving the cursor with the keys marked 'CRSR' to the point at where a change is required. Then overtype with the change. Press **RETURN** when the line is right and the line stored in memory is changed as well.

COMPUTER"

Type **RUN** and see for yourself that the program does what we want.

A graphic program

In all the examples above we have just printed words on to the screen. But we can also print the graphic characters displayed on the front of the Commodore keys. We can change the colour of the text or graphics or move the cursor around the screen as well.

To do this is simple. Just press the appropriate key with **SHIFT** (for the left side character) or the **COMMODORE KEY** (for the right side character) within the quote marks.

You will find that special symbols are displayed on the screen when you do this to show that the appropriate key is pressed. Some special symbols are visual representations of the control code being printed. These visual characters are usually reverse field graphic characters such as reverse field 'heart' for <CLR> — ♥. Just about any Commodore key except 'DEL' can be printed.

Below is an example of a program that will print a red square in the middle of the screen. Use the panel to find out how you get the various graphic characters:

LOAD and SAVE

There is one very important point about programs. Once they have been stored in memory they only stay there as long as the machine is switched on. We must have a means of storing them somewhere else when you turn the machine off.

If you want to store the program that is in memory onto cassette simply type: **SAVE "PROGRAM NAME"**. The words in quotes can be anything so long as they contain no more than 16 characters. They are used to identify different programs stored on the same tape or disk.

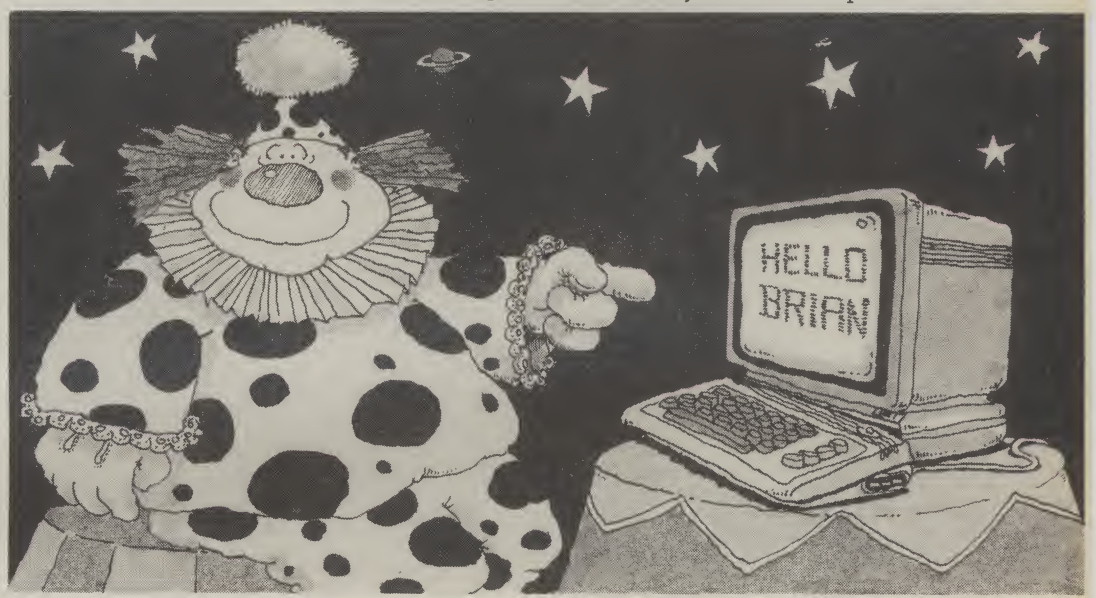
To save a program on the 1541 disk drive, we type instead: **SAVE "PROGRAM NAME",8.**

Having stored the program on cassette or disk we can now safely turn the computer off. Next day when you want to get your program back into the computer you load it into the computer from cassette by: **LOAD "PROGRAM NAME"**, or from disk by: **LOAD "PROGRAM NAME",8.**

There is another way of removing a program from store without turning the machine off. Simply type **NEW.** When you do this you can then start a new program on what is effectively a clean computer store.

Now is the time to test whether you have understood everything so far. Before next time have a go at trying to write a program which asks for the user's name and then prints both a smiling face and a welcoming message. Phew, time to take a breather — see you next month.

"revise the program so that the computer will print the name given after the word HELLO"



With line 10 in the original program the next line (I AM A COMMODORE COMPUTER) was printed on the next line. Because we have added a ';' at the end of the line the next item to be printed will be printed, not on the next line, but immediately following the text we have just printed.

Finally we add a new line:

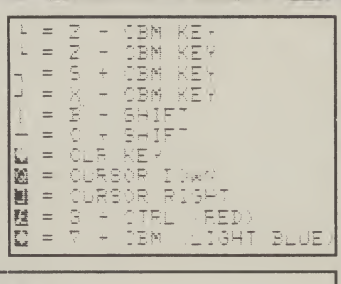
15 PRINT NA$

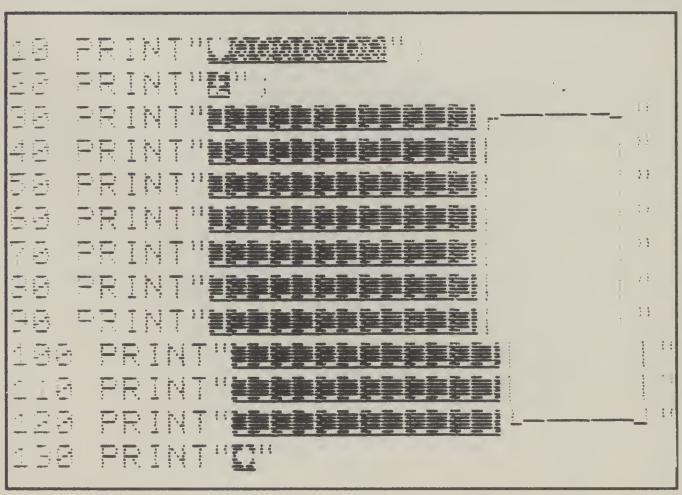
This will print the contents of the 'box' labelled **NA$**. We know this contains the name of the user.

By giving the line a number 15 it will be obeyed after line 10 but before line 20. We have *inserted* a new line in the program.

We now have the full program as follows:

```
5 INPUT "WHAT IS YOUR
  NAME";NA$
10 PRINT "HELLO";
15 PRINT NA$
20 PRINT "I AM A
  COMMODORE
```





Forth

The Forth Dimension:
Programming with a DIY Language
Part five — take a piece of string . . .

by Richard G Hunt

Handling numbers is important. The only aspect not so far covered in this series is input via the keyboard. This and string handling (including the input counterpart) is the subject of this article.

String handling is a little tenuous in Forth. Some would say non-existant. This does not mean that Forth is defective, merely that, for example, string variables as in Basic are not required. Forth relies on the ASCII table, which of course is numeric. So to output a character string the word **EMIT** is used which requires the appropriate ASCII value as a parameter on the stack:

>89 EMIT < Y OK

(Remember **DUMP** which had the word ASCII defined using **EMIT** in a loop?)

Programmed text may be output using [."] (dot quote):

>." Here is some text"
<RETURN> HERE IS
SOME TEXT OK

The final quote mark is not a Forth word but a delimiter to the text. Note also the mandatory space between [."] and the text.

With both **EMIT** and [."] most string output routines can be handled. Input is a little different. The building blocks exist in Forth but there is usually no pre-defined word to get input from the keyboard. So we must define a word like **INPUT$** ourselves. Fortunately this has been done before and as I decline to re-invent the wheel, or **INPUT$** I have drawn on several sources to provide this working definition, and it seems to me a reasonable consensus:

```
VARIABLE  STR$ 78  ALLOT

: INPUT$  STR$ 80 32 FILL ." >"
          QUERY 1 WORD HERE COUNT
          STR$ SWAP CMOVE ;
```

There are lots of new words and quite a lot else to explain here. First I should stress that this definition uses FIG-Forth, and that other implementations, even perhaps of FIG-Forth, may differ in some detail. Do check your system documentation regarding **WORD**. On Forth-79 the variable expression may be exchanged for **>CREATE STR$ 80 ALLOT<** which has a similar effect. The definition of **VARIABLE** does indeed use **CREATE** to allocate dictionary space for the entry to follow, which consists of a cell (two bytes). **ALLOT** turns **STR$** into an array of the specified number of bytes (here 80 in all as **VARIABLE** already has allotted two bytes). **CREATE** requires the full number of bytes to be allotted. So far then, we have made a space in the dictionary for an array of 80 bytes, which should be long enough for most purposes.

Next **FILL** ensures that the array is cleared by filling it with blanks (ASCII 32) — **STR$** leaves its address on the stack which followed by the count and character code is acted on by **FILL**. A prompt (>) is displayed. **QUERY** accepts a line of input up to the end of the line or a carriage return, and places the string in a temporary area whose address is indicated by **WORD HERE**.

The number 1 is a "null" delimiter required by **WORD**. It may be changed to 32, say, which will cut the string off at the first space. **COUNT** organises the address of **STR$** on the stack and finally **CMOVE** removes it character by character to the address (and reserved area) left by **STR$$**. This part is necessary because **HERE** changes all the time and without moving the string to a safeplace it would be corrupted.

Stringing out

Having input the string we need to output it again — like this:

: OUTPUT$ STR$ 80 —
TRAILING TYPE ;

[—**TRAILING**] causes trailing spaces to be omitted from the string output by **TYPE**. If you are in any doubt as to whether **INPUT$** works use **DUMP** to examine **STR$** in memory. First input a string to **INPUT$**, then enter: **>STR$ 'U.<**.

The system will indicate an address, for example, **7101 OK**. Now enter, say: **>7090 7130 DUMP<** and the ASCII display will show the individual letters of the string following the Name Field Parameter (NFP) of **STR$**.

KEY is most often used to get a single character from the keyboard. For example the common Basic routine:

500 GET A$: IF A$ = " "
THEN 500
510 IF A$ = "Y" THEN . . .

becomes in Forth

: GETA$ BEGIN KEY 89 =
UNTIL ;

which suspends execution until the key with ASCII value 89 is depressed. Obviously any value may be substituted, my favourite being 32 (space). A page routine may look like this:

: GET$. "Press SPACE to
continue" BEGIN KEY 32 =
UNTIL 147 EMIT;

So much for strings. You cannot imagine how they tied me up in knots.

Numeric input

Numeric input requires the definition of a special word like **INPUT$**. Some systems may support a word like **#IN**, otherwise you can define it in much the same way as for string input:

: INPUT 0 0 CR . ">" QUERY
1 WORD (NUMBER) DROP
DROP ;

INPUT uses **(NUMBER)** or **CONVERT** on some systems to ensure that a number is left on the stack. The rest of it is as before except that it is not necessary to move the input as the stack is as safe as anywhere.

Input of a number is often associated with choice within a legal range of numbers. Forth makes this easy with **MAX** and **MIN** both of which require on the stack the number to be checked (n1) and the legal limit (n2). **MAX** returns the greater and **MIN** the lesser, so in backwards Forth style the upper limit is checked against MIN. For example:

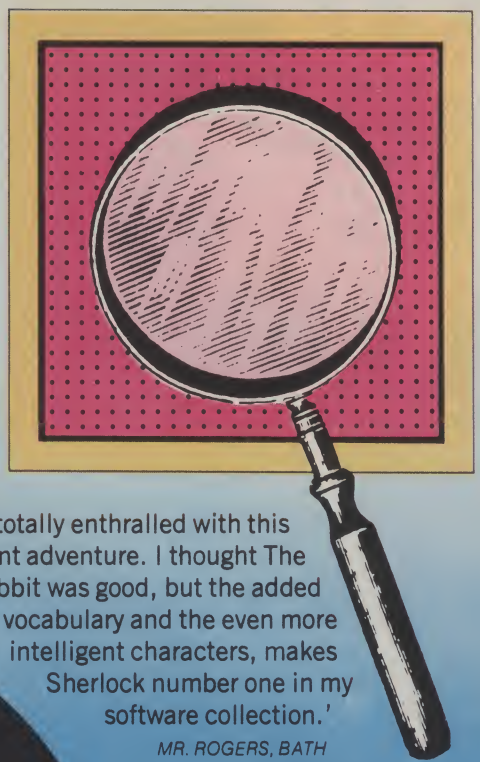
: LEVEL INPUT 10 MIN 1
MAX ;

which allows input of any number but will pass on for further processing only a number between 1 and 10.

Now for a simple exercise. Last year one of my daughters was having trouble with multiplication tables. I thought to try to help by writing a Forth word TABLE **that performs the following procedures:**

- **defines and resets a variable** CHOICE
- **gets input of a number and stores it in** CHOICE
- **clears the screen, prompts for input and displays the "n times table" formatted neatly in columns (using 'R' or 'D.R' and [."].**

Try to Do It Yourself, but remember to keep it simple. My solution next time.



'Another winner in The Hobbit class. It's a complex real time adventure which will keep devotees puzzled for hours.' *DAILY EXPRESS*

'Sophisticated, rich in atmosphere and amazingly detailed, Sherlock is a game which no Spectrum owner will want to be without.' *MICRO ADVENTURER*

'Sherlock is a long way ahead of the rest of the competition.' *PERSONAL COMPUTER NEWS*

'In Sherlock you can not only talk to other characters, of whom there are at least thirteen, and ask them to do things for you, but you can also interrogate them and even discuss the case.' *SINCLAIR USER*

Sherlock Holmes has been well worth waiting for with an 800 word vocabulary, real Victorian transport system – cabs and trains and all, and a cast of characters, peopling screens of graphics designed by Mugsy man Russell Comte.'
YOUR COMPUTER

'An intriguing and absorbing game.'
COMPUTER AND VIDEO GAMES

'I have been totally enthralled with this new brilliant adventure. I thought The Hobbit was good, but the added vocabulary and the even more intelligent characters, makes Sherlock number one in my software collection.'
MR. ROGERS, BATH

'Sherlock must be the most complex adventure ever created.

The creation of atmosphere is superb (more like that of a novel, than a computer game) in fact playing the adventure feels more like acting than playing a computer adventure.

The characters in Sherlock behave just as they would in real life and have a very human feel to them, not only in the way they react to situations, but also in their displaying of human emotions.'
MR. STERN, HERTS.

'Rich mental imagery.'
CRASH

'Sherlock is an adventure which has yet to be beaten.' *YOUR SPECTRUM*

'Sherlock is a superb program and will provide many hours (hours? months more likely) of stimulating entertainment.'
PERSONAL COMPUTER NEWS

'Sherlock is an excellent adventure bursting with atmosphere, challenge and inventiveness.' *PC GAMES*

'Sherlock the adventure is about as devious as Sherlock Holmes the master sleuth.' *POPULAR COMPUTING WEEKLY*

Available for C64 and Spectrum 48K

Melbourne House

YC1B

The Chart Topping Flight Simulation Now On CBM 64.

FIGHTER PILOT

ALSO AVAILABLE ON THE 48K SPECTRUM

FREE COLOUR POSTER AVAILABLE WITH DISK VERSION

BY D.K. MARSHALL
ADAPTED BY DARRELL D.

COMMODORE 64

A SPECTACULAR FLIGHT SIMULATION OF THE WORLDS MOST EXCITING JET FIGHTER WITH STUNNING 3D COCKPIT VIEW AND DEADLY 3D AIR TO AIR COMBAT.

The SUPREME SIMULATION .....
it leaves the rest at the runway threshold!

SPECTRUM VERSION VOTED
"Simulation of the year – 1984"
by **CRASH MICRO READERS.**

COMMODORE 64.

Fighter Pilot Disk		☐ £14.95
Figher Pilot Cassette		☐ £9.95

LOADING TIMES
DISK – 147 SECS
CASSETTE – 300 SECS

SPECTRUM

Night Gunner	48K	☐ £6.95
Fighter Pilot	48K	☐ £7.95
Tomahawk	48K	**Coming**
TT Racer	48K	**Soon**

VAT and p. & p. inclusive within UK
(Overseas inc. 55p. per cassette)

Cheques payable to Digital Integration Ltd
I enclose a cheque/P.O. for_____Total
Name_____
Address_____
_____
Or debit my Access Account No.
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Please send to Digital Integration, Dept
Watchmoor Trade Centre, Watchmoor Road, Camberley, Surrey GU15 3AJ.

Access
Tele Sales
(0276) 684959

DIGITAL INTEGRATION

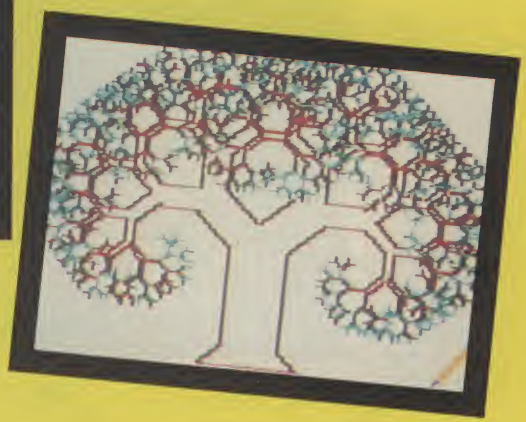
Watchmoor Trade Centre,
Watchmoor Road,
Camberley, Surrey
GU15 3AJ

Trade and Export enquiries welcome. Lifetime Guarantee.

CU3

50 Designer's Pencils To Win

Putting graphics up on screen can be a tricky job for the non-professional programmer. To make it slightly easier a number of graphics software packages have been launched recently. One of the best of these is Activision's excellent Designer's Pencil. We have fifty copies of the Pencil — worth £9.95 each — to give away in our simple-to-enter competition.



The Designer's Pencil is Activision's first foray into utility programming and — if the quality of the graphics tool is maintained the future looks good for 64 owners.

Activision established themselves two years ago as the leading American video games company — writing games for the Atari VCS.

Their conversion to the computer has been about the only successful transition that a leading video games company has made. All the others have gone bust or faded into obscurity.

Games like Pitfall I and II, Decathlon, Zenji, and Ghostbusters have kept Activision in the top five of computer games companies in the world. Much of this knowledge has been incorporated in the Designer's Pencil.

The Pencil uses a programming language called PROG. Options are chosen from a menu with the joystick. It's all simple to use and easy to understand. Unlike standard drawing programs the Pencil also includes the option to use sound functions of the 64.

As well as choosing options with your fire button you can also use the joystick to draw free-hand directly on to the screen. The Pencil shows you all the programming that is required to create a graphic as you draw it through a window on the screen.

Winning a copy of the Pencil is as easy as using the Pencil itself. All you have to do is complete your general knowledge quiz on designers and send it off without delay to **Commodore User, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.** *Entries by 15th February please.*

The competition is not open to employees of EMAP Business and Computer Publications. Entries should reach this office by no later than 15th February 1985. The editor's decision is final and no correspondence will be entered into.

QUESTIONS

1 Ghostbusters the computer game was designed by
(a) David Crane
(b) Ray Parker Junior
(c) Ferdinand De Lesseps

2 Princess Diana's wedding dress was designed by
(a) Hardy Amiss
(b) David and Elizabeth Emmanuel
(c) Jasper Conran

3 CAD stands for
(a) Computers Against Disarmament
(b) Can Anyone here Dance
(c) Computer Aided Design

NAME..... 1 ☐

ADDRESS..... 2 ☐

..... 3 ☐

If I won a copy of the Designer's Pencil I would use it to (please complete this sentence in not more than twenty five words)

.....

.....

.....

.....

From Paintpots To Pixels

To get the most out of the graphics capabilities of your Commodore 64, you'll need to buy some graphics software, and there's a lot of it around. Generally, products fall into three categories: graphics editors that let you design characters and sprites, extended Basic packages that specialise in graphics commands, finally there's fully-fledged hi-res drawing packages. Dermot Williams has sampled a few products in each category — and has drawn some conclusions.

Main picture shows one of the pictures you'll find on Doodle's demo program, so good they put it on the package's front cover.

Sports car, sailing boat and steam engine, courtesy of Activision's Designer's Pencil. The fourth illustration shows a multicolour sprite being created on Supersoft's Graphics Designer package.

by Dermot Williams

Graphics Editors

Romik Graphics Editor

Graphics Editor is available currently only on tape, and it costs £14.99. Plans to release it on disk are still in their early stages. As its title suggests, the program allows you to design your own graphics in three main areas: characters, sprites and screens. The program runs automatically after loading and displays a menu of the three above options.

So let's start with defining characters. The character being edited is displayed both on an 8 by 8 grid as well as in normal size. The complete character set is also displayed at the bottom of the screen for reference. In addition, groups of characters can be viewed together in a 'viewing window'.

To edit the character you must use the keyboard to position the graphics cursor around the grid, turning pixels either on or off. The program also provides commands for working on the character as a whole. So you could clear it, invert or flip it round both the horizontal and vertical axes — even scroll it vertically or horizontally.

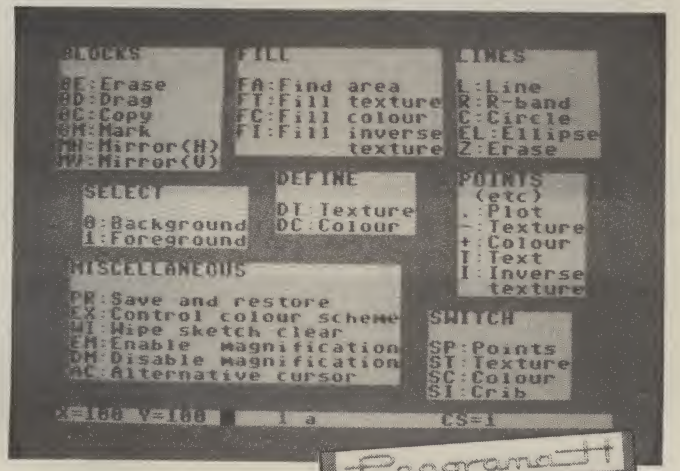
The 'M' command gets you into multicolour mode. However, the grid doesn't operate in multicolour; the character on the screen is still 8 by 8 so to choose the colour of a multicolour pixel, you must edit two bits.

That leads us on to sprite design which uses the same general method. The sprite is displayed on a large grid, as well as in its four normal sizes. A display window allows four sprites to be viewed together.

Generally, you get the same editing and manipulating commands as for the character editor, but there is one extra and useful feature. You can display a series of sprites in the display window, making it easier to design animated sprite sequences.

Lastly, the screen editor allows screens of user defined characters to be composed. A portion of the screen may be defined as a 'block' to be moved, scrolled, and inverted just like sprites and characters.

Having designed your character, sprite or screen, you'll want to include them in your programming. Each section in the *Graphics Editor* allows the user to save his or her work on to tape or disk. The manual, which is clear and easy to follow, includes a short routine for loading those files for inclusion into your own Basic programs.



The first screen you see when you load Talent's Panorama (H) is the main menu, showing its extensive range of one and two letter commands.

Supersoft Graphics Designer

This package is a little cheaper than Romik's, selling at £9.95 for the tape version and £11.95 on disk. *Graphics Designer* has two options, allowing you to design your own characters and sprites.

Let's start with the character editor, which displays a large designing grid as well as the whole character set. To work on the grid you can use either the keyboard or a joystick. Like the Romik package, there's a wealth of commands to manipulate the character in various ways: you can clear it, flip it around either axis, invert, scroll and rotate around 90 degrees.

To design shapes of more than one character, you can define a window of up to 32 characters. This is displayed to the left of the grid, the next character in the window being automatically brought on to the grid, allowing you to work on the whole window easily. Commands such as rotate and flip may be applied either to the whole window or only the current character being edited.

Graphics Designer also features a multicolour mode. Here, the cursor doubles in size, and at the side of the screen are displayed the three selected colours, and a pointer that indicates the colour the cursor is currently using. So there's no bit twiddling to do — it's very easy to use.

On to sprite design: here the grid is larger and the current sprite (like the Romik package) is displayed in each of its four possible sizes. The sprite is designed and edited on the grid using the keyboard or joystick.

Funnily enough, load and save commands have been named OLD and KEEP. They'll allow you to use either tape or disk. The manual included has a neat little program for transferring your work from memory into Basic DATA statements so you can incorporate your designs into your programming work.

Finally, which one should you choose? If you don't really want or need the screen editor in Romik's Graphics Editor, Supersoft's package is generally easier to use and a little more versatile for sprites and characters — it's cheaper too.

Basic Commands For Graphics

Zipprint Graphix IV

There are plenty of packages around that extend the Basic commands available to your Commodore 64. Most of them, though, give a range of commands that cover graphics and a whole lot of other facilities. *Graphics IV* is one of the few programs available that specialises in graphics, adding 19 extra commands to Basic. It comes on cassette only and costs £9.99.

Eight of those commands are dedicated to hi-res graphics. The HGR command selects hi-res mode, giving the option of a four-line text window at the bottom of the screen. HCLS clears the hi-res screen, and COLOUR, MOVE, DRAW and PLOT allow points and lines to be drawn. PAINT covers areas with colour and PUT allows text to be incorporated on the hi-res screen.

When the package is loaded, it automatically copies the character set into RAM so the user can easily define them. In fact, the CHARACTER command is provided for that purpose. CMODE selects which character (upper case/graphics or lower/upper case) your commands are operating on.

Other commands are BORDER and BACKGROUND for defining the

Graphic packages for the 64

From Paintpots To Pixels

colour of the aforementioned, CURSOR for moving the text cursor to any x,y position on the screen, and BLANK/UNBLANK for inhibiting the Vic chip. This is what happens when the screen blanks during a cassette or disk operation and is useful if you want to use hardware which has timing problems with the 64 — such as the old Vic 1540 disk drive.

Unfortunately, for a utility devoting itself entirely to extending the 64's Basic for graphics purposes, Graphix IV doesn't really have enough commands. The ones it does have are fast and easy to use, but a complete Basic extension, like BC Basic at £19.95 on tape, may be a better buy — it offers the same and a whole lot more.

HesWare Graphics Basic

This is a much meatier package incorporating 100 additional English language commands to Basic. Unfortunately, it is available only on disk and costs a mighty £27.95. Although the package describes itself as being dedicated to graphics, it offers not only commands for creating hi-res graphics and sprites, but for animating sprites and producing synchronised sounds.

The package operates in three screen modes: text, hi-res and multicolour. Text mode lets you list and edit programs, and hi-res and multicolour allow graphics to be displayed and programs run. Modes can be switched simply by typing the appropriate command. Function keys are also implemented for quick use of commands like Run, List and Dir.

The Border and Background commands let you change colours, whilst Line draws a line from two specified points in the x,y to x,y format. The same goes for Circle, which produces circular shapes and arcs. You specify the x,y coordinate of the centre and use the XYSIZE command to specify horizontal or vertical radii. FILL lets you fill any enclosed area with colour, specifying both the colour and the mode in the program line. It's also possible to print text on a graphics screen using GPrint.

On to sprites, which can be created and moved. The sprite editor has a 24 by 21 dot grid on which pixels can be turned on and off — the actual size of the pixel is also displayed. Sprite shapes are included on the disk. There's also a useful example to show you how to incorporate your creations into a program and how to move them around.

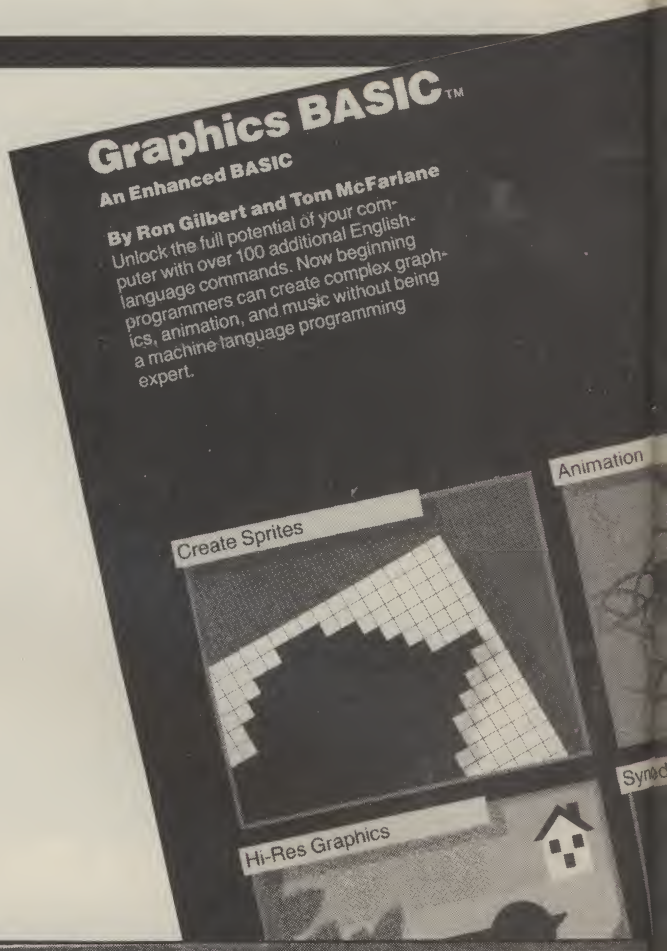
That takes us to creating sounds: you can turn on and off automated sounds, choosing any of the three voices and setting the ADSR envelope. Also included are commands for selecting the possible waveforms and for setting the volume. Lastly, you can print a hi-res or multicolour image to a Commodore printer or a Gemini series printer.

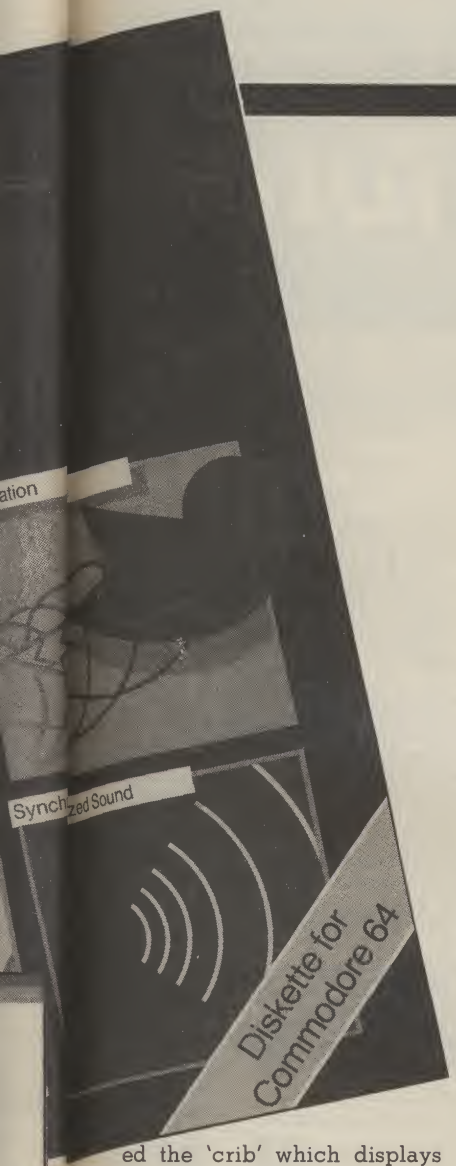
The package comes complete with a 120 page manual that not only comprehensively lists, describes and gives examples for each command, but also provides a useful tutorial section at the beginning. Graphics Basic is expensive but it gives you much more than commands for creating graphics.

High-Resolution Graphics

Panorama from Talent

Panorama is a hi-res graphics package that comes on tape (£17.99) and on disk (£19.99). On loading, the screen displays the 34 available commands. Any command is operated by typing its one or two-letter mnemonic. For example, 'L' draws a line and 'EL' would draw an ellipse. There's a status line display at the bottom of the screen call-





ed the 'crib' which displays among other things, the current x,y position of the cursor. In fact, you have a choice of three different types of cursor: an arrow, a gunsight or nothing at all.

The spacebar toggles the display between the menu screen and the picture you're working on. You can use either the keyboard or a joystick to move around the screen one pixel at a time, and the function keys can be used to move the cursor in eight-pixel jumps.

As well as drawing individual points, *Panorama* will draw and erase lines, circles and elipses. An 8 by 8 'texture block' can be defined (much the same as on an Apple Macintosh) and used to add texture to your drawings. Used with a little practice and imagination, this can become a powerful command. either rectangular or irregular blocks can be defined, which may then be textured, coloured, mirrored, erased, copied and moved.

The memory retains four different colour schemes so you can experiment easily with colour. The EX command selects which colour scheme to use to display the pictures on screen. The picture may be magnified to make editing fine detail easier. Complete masterpieces may be saved to tape or disk and also verified, merged and loaded.

Generally, the system of using mnemonics to operate the commands in Panorama take a long while to get used to, but with a little practice you can work quite quickly. One sore point is that after each command has been entered, the computer gives either a 'pip' to indicate it was correctly entered or a wail if it was wrong. Audio feedback is a good way of highlighting errors but the constant 'pips' will have you reaching for the volume control — so you can't hear the mistakes either.

Doodle from Quicksilva

Quicksilva is now marketing this American product in Britain at £14.95, around half the US price. Unfortunately, it's available only on disk.

After loading the package you get a 'greeting' screen followed by the main menu. This lists the ten modes in which *Doodle* can operate — Sketch, Line, Boxes, Circles, Colour, Zoom, Copy, Stamp, Letter, Disk and Print. You can change mode at any time using the function keys and instead of the main menu, the respective mode menu is displayed. Return toggles you between the menu and drawing screen.

Each mode menu lists the commands available in that mode, in an uncluttered and colourful way. For example, in Sketch mode, you can move the cursor at nine different speeds and nine different sizes. You can fill areas with colour, invert the screen, flip the screen around the

SPECTRUM
SIMULATOR FOR THE COMMODORE—64

If you have a Commodore-64 microcomputer, this brilliant program will allow you to use virtually any Spectrum BASIC programs without modification!

Just think of it! — your programs will think you really have a Spectrum! Because your 64 has a proper keyboard plus RS232, disk-handling, and serial port facilities, we are throwing in a lot of the features of ZX-Interface-1 as well.

Only £14.95 with manual in turbo-tape format

SOFTCHIP—64

Plug in cartridge with extra commands.
Our three standard cartridges are :

Programmer's Friend: append, auto, backup, catalog, collect, concat, copy, cursor, dclose, delete, derror, directory, dload, dopen, dsave, dump, func, header, help, kill, lines, merge, mon, record, rename, renu, replace, rescue, scratch, shrink, timeout, trace, user, var.
...the ideal 'toolkit' to make writing and debugging programs quicker and easier... also includes disk commands.

Business Commands: append, backup, blank, catalog, cend, cif, collect, concat, copy, cursor, datin, dclose, derror, directory, dload, dopen, dread, dsave, elif, else, error, genin, header, lwind, numin, pad$, pctrl, per, pop,record, rename, rout, scan, scopy, scratch, sort, spc$, swap, swind, print, print , on.
...all the features to make writing business programs a darn sight simpler...stop wasting time!...

Graphics Pack: bank, bload, break, bsave, cend, chargen, chinkle, cif, clear, col$, dec, design, dot, draw, elif, else, erase, filter, hex$, hibase, hitback, hitspr, ink, kill, lines, lsprite, lwind, membot, memtop, mode, move, per, plot, pop, push, reset, rout, scroll, split, sprite, ssprite, stick, swind, voice, volume, wpeak, wpoke.
...for high resolution graphics and sound...includes also structured BASIC language...

Each of these standard cartridges is only £29.95 including a full manual.

We also specialise in cartridges custom-made to your specification for only £34.95 — just ask for our special leaflet containing details of over 100 new commands and facilities. Get a cartridge custom-made for your precise needs — we guarantee the software will work beautifully so order with confidence from the experts.

FOR FULL DETAILS OF ALL OUR PRODUCTS
SIMPLY WRITE OR PHONE OUR HOT-LINE
We accept Access and Visa

WHITBY COMPUTERS LTD
7.CHUBB HILL ROAD, WHITBY, N.YORKS
YO21 1JU Hotline: 0947-604966

vertical axis and save the whole screen to memory for later recall. You can even superimpose a grid on to the screen to help you plan your drawings.

Line, Box and Circle modes are similarly laden with easy-to-use commands, with as many functions as possible accomplished by the joystick. Colour mode selects the fore and background colours for working in, and sets colour cells for these colours. Zoom allows you to zoom in on any part of the screen making single pixel editing much easier.

Stamp lets you create 'rubber stamps' of small sections of your drawing which you can stamp anywhere on the screen. Copy lets you copy larger areas which have been defined in Box mode. The area can be saved to memory, be enlarged or rotated.

Finally, Disk and Print mode loads and saves to disk, and prints your masterpiece — not only on a Commodore printer but other popular models like *Epson, Okidata* and *Star*, providing you have a Centronics interface adaptor.

In conclusion *Doodle* is not only easy to use, it's great fun as well. The manual is clear and concise and the mode screens informative. It really is child's play to use.

Activision's Designer's Pencil

The Designer's Pencil package refuses to fall into any strict graphics category because it throws aside Basic in favour of a programming 'technique' it calls PROG, in which you string together sequences of commands. The package costs £11.99 on tape and £19.99 on disk.

On loading the program, you're confronted by the Programming Screen, a screenful of commands divided into four sections: master commands, programming area, instruction set and prompt window. Moving around is done by either keyboard or joystick.

The master commands let you do routine jobs like running the program you've built, inserting lines into the program, deleting, clearing the screen and filing your work. The Prompt Window helps here and it gives you access to twelve demo programs.

That takes us to the Instruction Window from which you choose various drawing commands, like: Go Up, Down, Left, Right, Circle, Kaleidoscope on/off, Pencil on/off etc. There are also commands for changing background and drawing colour, setting the drawing speed, moving forwards, backwards, rotating, drawing diagonals, producing sound and music.

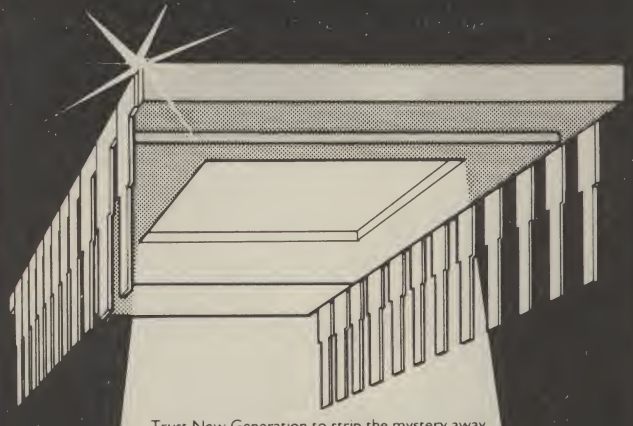
You use the joystick to scroll through the commands vertically, positioning the 'arrow' cursor by the one you want. The same goes for the program lines on the left side of the screen. To create a circle, for example, you'd use the Circle command, which entails specifying the radius, the format being 'CIRCLER = 112'.

With all the draw commands, you can specify variables 'A-Z' instead of figures. As in Basic, instead of just using one value, your variable can have different values throughout the program. You can set up program loops, and there's a Jump command that works in the same way as a Goto in Basic. That gives you the provision for animating parts or even the whole drawing.

Finally, it is possible to print your creations and program listings on a Commodore 1526 or MPS 801 printer. If you're lucky enough to have an Okidata Okimate 10 colour printer, you could use that too.

It's clear that *The Designer's Pencil* is a very sophisticated package; just looking at the Demo screens with the 'pencil' whizzing around furiously is enough to inspire enthusiasm. But this is no 'pick up your joystick and draw' program, it involves actual programming and the commands used are initially just as daunting for the beginner as Basic itself. The trade-off is that this package will provide facilities for even the most hardened enthusiast.

The Complete
Machine Code Tutor
SPECTRUM 48K · COMMODORE 64 · BBC MODEL B · 32K ATARI



Trust New Generation to strip the mystery away from Machine Code. Now the Complete Machine Code Tutor makes learning machine code simple so there's never been a better time to discover the really great benefits of machine code programming – see what the press says:

"A colourful, clear, interactive computer teaching package – the best I've come across in any field. Jan Watterson – **Popular Computing Weekly**"

"This pair of tapes forms a worthy addition to the range, giving a thorough exposition from the most elementary level of machine code programming on the BBC Micro. **Which Micro & Software Review**"

"The best machine code tutor and no serious Spectrum programmer should learn machine code without it. **Crash**"

"By far the best attempt comes from New Generation Software who has recently issued its Complete Machine Code Tutor for the BBC and the Spectrum. **Popular Computing Weekly**"

"New Generation have got a very nice product here. It's well thought out, easy to use, aesthetically pleasing, and (as far as I could tell) bug-free and crash-proof" . . . "Overall then, an excellent idea, well executed. **Computing Today**"

Supplied with full notes, this package teaches machine code the way it should be taught – at your own pace and actually from the microcomputer, not from a book. You learn programming the professional way, plus a few tricks of the trade. Available from all good computer stores at £14.95.

New Generation products are sold according to their terms of trade and conditions of sale.
FREEPOST, Bath BA2 4TD. Tel: 0225 316924

Selected titles of New Generation Software are available from your local computer store and larger branches of: WHSMITH · John Menzies · WOOLWORTH · spectrum · Boots

COMMODORE User

Deals For Readers
01-241 2448

Save over £50.00 in this month's catalogue with a wider range of deals on the best of Vic and 64 products.

Some of them, like the dustcovers and the Victuals tapes, we have produced ourselves. The others are things that we regard as Good Ideas and Good Value, mostly items reviewed in Commodore User.

On most of those we have fixed up discounts for readers (and while we aren't allowed to sell books at cut price, we can include P&P in our price)

If you want to take up any of the offers, just use the Order Form on the back page.

Doodle **A drawing package with stunning results.** Full drawing and painting facilities with zoom facilities for intricate drawing and editing. More accurate than light pens as spectacular as Koala at a fraction of the cost! Output for printers including Commodore, Gemini, Okidata, Prowriter and Epson. For the 64.

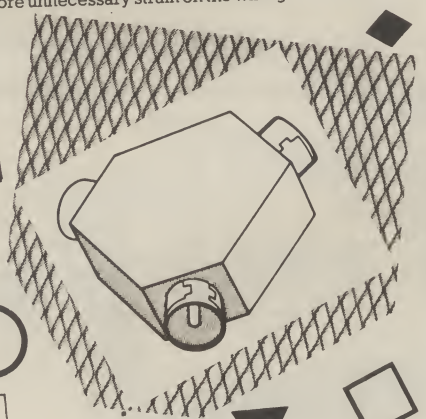
OUR PRICE £13.99

Video Splitters – £1.75

Aerial and computer both on your TV!

This nifty little gadget plugs into the aerial socket at the back of your TV set, and it means you can have the Vic/64 and the aerial attached at the same time.

No more boring fiddling around to change the plugs, no more unnecessary strain on the wiring!



COMMODORE REFERENCE DIARY

January 1985

Thursday 24

Last chance to get your 1985 Commodore diary packed with hints and tips from the Commodore Guru: Jim Butterfield.

Our price: 95p while stocks last

Pixel Pads all you need for excellent screen design!

All the programming information you need to create really stunning screens and user defined sprite graphics, and dozens of design sheets to work from. For the 64.

OUR PRICE £4.95

Now you're talking: Currah

Speech 64 is an allophone speech synthesiser which can say any word you require. It is fully compatible with the 64 and features two voices and on board text to speech firmware. Comes with complete manual for just **£24.95** Normal price **£29.95.**

VIC TAPES

the pick of reader's programs for the Vic

VICTAPE ONE – ten games for any Vic

VICTAPE TWO – ten games for expanded Vics

PRICE: £1.99 PER TAPE

SPECIAL – both VicTapes for **£3.00**

Fantastic Value 10 GAMES for £1.99

GOLDEN GREATS

Vic Games from Audiogenic

PACK ONE: Amok • Alien Blitz • Bonzo

PACK TWO: Country Garden • Kaktus • Mangrove

PACK THREE: Shifty • Pit • Golf

All-time favourites – action and colour, great for the kids.

OUR PRICE: £6.99 per pack of three.

SPECIAL – ORDER ALL THREE PACKS FOR £17.99

To take advantage of these offers just fill in the order form on the back page.

STACK
FOR THE VIC

Vickit 2: add nine programmer's aid commands and a dozen graphics commands to your Vic. RRP £6.00 chip, £13.00 cartridge ... our price:

EPROM £4.90
CARTRIDGE £11.25

Vickit 3: give a Vic twenty new commands for hi-res graphics. RRP £6.00 chip, £13.00 cartridge ... our price:

EPROM £4.90
CARTRIDGE £11.25

Vickit 4: fast cassette load – loads and saves up to seven times faster. Includes auto-tape position and source text editor. RRP £6.00 chip, £13.00 cartridge ... our price:

EPROM £4.90
CARTRIDGE £11.25

RAM 'n' ROM cartridge: for Stack's Vickit chips ... our price:

£6.00

IEEE Cartridge: run Pet peripherals on the Vic. RRP £38.00 ... our price:

£26.40

Vic Four-slot Switchable Motherboard: plugs four cartridges into one cartridge slot. RRP £15.00 chip ... our price:

£13.80

Storeboard: plugs into the cartridge slot to add 8K extra memory and a freebie Vickit 2. RRP £30.00 ... our price:

£20.50
CARTRIDGE £11.25

TWO SPECIAL CARTRIDGES FOR THE 64

We've commissioned two special add-ons for the 64 from Whitby Computers, another company whose products we reviewed and liked. Just look at what you get:

The Commodore User Toolkit Cartridge
... for easier programs

AUTO automatic line numbering
DELETES deletes specified lines
FIND lists all lines containing specified string
LINES calculates number of lines in your program
MERGE merges program from disk or tape
RENU renumber program

DUMP lists names and current values
VAR lists variable names

DESIGN multi-colour sprite editor
SPRITE sets position, colour, mode
HITBACK detects sprite hitting background
HITSPR detects sprite hitting another sprite

MON Pet-type machine code monitor
USER add new commands
FUNC defines function keys
SHRINK removes REMs and all unnecessary spaces
CURSOR puts the cursor at specified position
... and much more

PRICE: £27.50

David's Basic
... for better programs

AVG averages elements in an array
MIN finds the smallest number in an array
MAX finds the largest

PAD$ fills out a string with spaces
SEARCH searches array for given string
SORT sorts arrays

CHINKLE rings a bell
ERROR intercepts program errors

CIF conditional IF
CEND conditional END
ELIF Else If
ELSE Else
POP removes last subroutine from stack
PUSH puts a subroutine return address on to stack
EXEC a bit like PROC or labelled subroutines
ON used as ON key GOTO or GOSUB
SWAP loads another program, retaining all variables

CLOCK continuously displays the time at stated position
COL$ simplifies use of 15 colours
LWIND loads a ready-to-go screen display
DISP displays centered message

DATE$ turns a numeric date into a string
DATIN foolproof date input routine
GENIN foolproof input routine
NUMIN foolproof numerical input

PRINT% justifies columns of money figures
PRINT # adds true printer tabs
SCOPY screen copy
... and 18 other commands

PRICE: £27.50

SPECIAL BARGAIN OFFER:
order the two at the same time and save a fiver – £50 for the pair!

CYBERGRAM
DESIGN YOUR OWN VIC SCREENS

Brilliant idea, though it's simple really; the Cybergram Designs Vic-20 Graphics Aid Pack is a set of overlays and printed sheets on which you can immediately see the POKE locations you need for display and colour; and you can use successive sheets to set up a specific 'storyboard' from which to organise and visualise the sequences in a graphics program.

Your pack includes planner sheets for the standard 22 x 23 screen and plotter sheets for the 1023 x 1023 hi-res graphics using the Super Expander; you also get a set of handy character designer sheets that simplify the construction of your own shapes.

Very neat, very clever – and really useful too ... and at a discount from the normal RRP of £4.50.

Normal Price £4.50
OUR PRICE £4.20

Spectrum Emulator

Whitby Computers' amazing tape makes the Commodore 64 think it's a Spectrum 48K, bit of a downgrade? True, but now you can enter Spectrum basic programs and magazine listings. Includes manual on how to program in Spectrum basic.

Available on tape at: £14.95

KEEP IT CLEAN

Keep your cassette and computer clean with matching black covers – effective, efficient.

Sticky keytops? Things falling past the keys into the computer or the tape heads? Don't take the chance. When you're not using your Vic or 64, slip over one of our tailored **Commodore User** dustcovers – a smart black number featuring the magazine's logo on top. They do keep out dust, but they'll also cope with coffee splashes (anything less than a thunderstorm in fact!), paperclips, cigarette ash, the residue of longhaired cats, and the general detritus of daily life.

To take advantage of these offers just fill in the order form on the back page.

WEAR YOUR MAG!

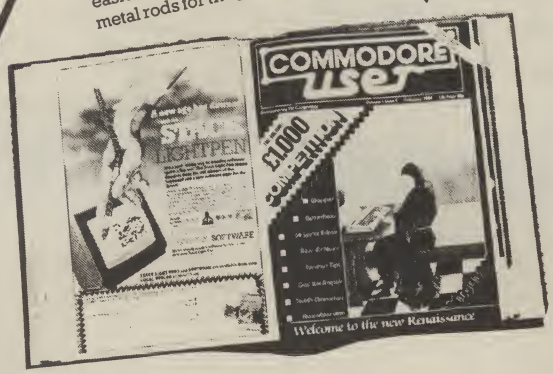
Commodore User tee-shirts and sweatshirts are in good-quality cotton, ideal for late nights in front of the computer or the beach at Torremolinas or the lounge bar at the Pig and Whistle.

Cobalt blue, with the magazine's logo big and bold across the chest. State size when ordering: we have small, medium, large and extra large.

Sweatshirts £7.75 **Tee shirts £3.75**

BINDERS – £2.99 FALLING APART?

Our Commodore User binder holds 12 issues of the original-size magazine (and Vic Computing fits too!) Dark blue with the magazine's name in gold: smart, sturdy and sensible – the mags are held in by strong elastic grips, easier and neater than the other kind of binder that has metal rods for the purpose.



OSIRISAN Assembler/Disassembler

A major update and enhancement of the well reviewed (June 84) Freditor Osirisan assembler from Elmhirst Enterprise. A symbolic disassembler has been added which allows synthesis of your own program source which you can then view, alter and reassemble. Disk users will additionally now get the powerful verison 3 editor.

Tape: £17.95
Disk: £22.95

SIMPLY WRITE

Simple, low-cost word processing for Vic or 64

You won't find a better word processor at the price – has all the functions you'd ask for from a £200 package, and it's friendly and easy to use too.

Disk or tape at only £34.95

Instant database for your 64

INFOTAPE

Why buy lots of different data storage systems when just one will do? INFOTAPE 64 is a powerful yet easy to use database system for tape users, and stores up to 3,000 data items with you defining the number of fields per record. Totally flexible; and interpretive in nature, with the user having the command of what data is stored and how. And file characteristics may be changed after the file has been created. Powerful 19-function calculator is built-in (giving spreadsheet capability): batch processor can update or delete all or selected records. A full report generator is included to provide anything from a gummed label for a mail shot to tabular reports...

Normal price: £16.95
OUR PRICE: £9.95

Special Offer: When you upgrade your system to use a disk drive, INFODISK will be able to retrieve your tape records – and your INFOTAPE order from us comes with a £20 off voucher against the disk version!

BOOK Corner

The most useful books we've found for the Vic and 64. Most by the founding editor of Commodore User.

Commodore 64 Subroutine Cookbook: David Busch
For would-be programmers everywhere. It's concise and accurate with excellent line-by-line descriptions guaranteed to turn you into an expert.

The Complete Commodore 64: Dennis Jarrett
Another excellent book – covering all the angles of the 64 to help both beginners and experts alike.

Getting the Most from Your Vic-20: Dennis Jarrett
Just bought a Vic-20? Then you'll need this comprehensive, carefully designed book to help get to grips with it.

The Good Computing Book For Beginners (3rd edition): Dennis Jarrett
The essential A-Z on computing. Wittily scripted, well thought out but most of all thorough.

STACK FOR THE 64

Zap-proof joystick £7.95

Stack claims this joystick is "almost" unbreakable: we'll vouch for that. Non-slip rubber sucker feet, two fire buttons, shaped grip.

Four-slot Switchable Motherboard for the 64

Instant expansion for the 64. Plugs into the cartridge slot, lets you plug in up to four cartridges.

Normal: £38
£29.95

Instant Interfaces

Plug any printer into your 64

Run any printer (or plotter, or maybe even modem) on your 64. These interfaces by Stack convert the 64's odd IEEE signals into something the printer can handle.

Centronics Interface:
Normal £24.00
£22.00

RS-232C Interface:
Normal £33.00
£29.95

The HELP Cartridge for the 64

All those extra commands you want!

A programmer's aid cartridge for the 64 from Stack. Adds twenty toolkit commands to Basic (auto line number and renumber, find, step, trace, etc: plus hex-dec converter) and a comprehensive monitor and disassembler and several single-key disk-handling commands.

Normal price £25.00
OUR PRICE £22.50

The Arrow Cartridge

Tape save/load seven times faster!

£26.00

This Stack cartridge for the 64 gives *not just* the high-speed cassette operation ,,, *but also* a full version of the TIM Machine Language monitor ... *and* fast-forward to any of nine predetermined positions on a cassette ... *and* a hex-dec converter with hex arithmetic built in.

CBM 64 Basic Compiler

This turns your normal Basic programs into superfast machine-language-speed code! On tape.

Normal Price £14.95
OUR PRICE £13.45

MusiCalc

MusiCalc is a Deals For Readers product

01-241 2448

Deals for Readers

Make your disks go like lightning!

1541 EXPRESS

Ingenious plug-in cartridge accelerates disk transfers – see the October review for full details. By RAM Electronics, who really do these things well.

Normal price: £49.95
OUR PRICE: £45.95

VICSPRINT for Vic & 64

Trippler Interface

Serial IEEE to Centronics converter which doesn't use any program memory space. Plugs into the user port on Vic or 64 to interface with most printers (either daisywheel or dot matrix), and will work with most commercial packages. A RAM Electronics product RRP £49.95

Normal price: £49.95
OUR PRICE: £45.95

Order Form

Prices here include VAT and P&P within the UK and Ireland. For delivery elsewhere, please add overseas postage on each item as follows:

Item	Europe	Elsewhere
Books, binders, cartridges, assembler	2.00	4.00
Tapes, video splitters, tee-shirts, covers	0.50	1.50
Everything else	1.00	2.00

All offers subject to availability; please allow 28 days for delivery.
If there is anything else you would like to see in Deals for Readers, please list below:

FOR THE 64

THE COMPLETE 64	no.[ ] at £	7.95 =
SPECTRUM EMULATOR	no.[ ] at £	14.95 =
SUBROUTINE COOKBOOK	no.[ ] at £	7.95 =
PIXEL PADS FOR THE 64	no.[ ] at £	4.95 =
RAM 1541 EXPRESS	no.[ ] at £	45.95 =
RAM VICSPRINT INTERFACE FOR 64	no.[ ] at £	45.95 =
SIMPLY WRITE 64 TAPE WORD PROCESSOR	no.[ ] at £	34.95 =
SIMPLY WRITE 64 DISK WORD PROCESSOR	no.[ ] at £	34.95 =
OSIRISAN 64 TAPE ASSEMBLER	no.[ ] at £	17.95 =
OSIRISAN 64 DISK ASSEMBLER	no.[ ] at £	22.95 =
COMMODORE USER TOOLKIT CARTRIDGE	no.[ ] at £	27.50 =
DAVID'S BASIC CARTRIDGE	no.[ ] at £	27.50 =
SPECIAL OFFER: BOTH TOOLKIT & DAVIDS	no.[ ] at £	50.00 =
INFOTAPE DATABASE (TAPE)	no.[ ] at £	9.95 =
DOODLE GRAPHICS PACKAGE (DISK)	no.[ ] at £	13.99 =
ARROW CASSETTE ACCELERATOR CARTRIDGE	no.[ ] at £	26.00 =
HELP TOOLKIT CARTRIDGE	no.[ ] at £	22.50 =
CENTRONICS INTERFACE CARTRIDGE	no.[ ] at £	22.00 =
RS232 INTERFACE CARTRIDGE	no.[ ] at £	29.95 =
64 COMPILER (DISK BASED)	no.[ ] at £	15.00 =
64 COMPILER (TAPE BASED)	no.[ ] at £	13.45 =
MUSICALC 1 DISK (SYNTHESISER & SEQUENCER)	no.[ ] at £	49.99 =
MUSICALC 2 DISK (SCOREWRITER: CBM1525, EPSON)	no.[ ] at £	34.99 =
MUSICALC 3 DISK (KEYBOARD MAKER)	no.[ ] at £	34.99 =
SPECIAL OFFER: MUSICALC 1, 2, 3	no.[ ] at £	110.00 =
MUSICALC DEMO DISK	no.[ ] at £	6.00 =
CURRAH SPEECH SYNTHESISER	no.[ ] at £	24.95 =

FOR ANY USER

THE GOOD COMPUTING GUIDE	no.[ ] at £	2.95 =
ZAP-PROOF JOYSTICK	no.[ ] at £	7.95 =
VIDEO SPLITTERS	no.[ ] at £	1.75 =
MUSICALC DEMO TAPE (AUDIO)	no.[ ] at £	3.00 =
COMMODORE USER SWEATSHIRTS	no.[ ] at £	7.75 =
COMMODORE USER TEE-SHIRTS	no.[ ] at £	3.75 =
COMMODORE USER BINDERS	no.[ ] at £	2.99 =
COMPUTER DUST COVERS	no.[ ] at £	2.50 =
CASSETTE DUST COVERS	no.[ ] at £	2.00 =
DISK DRIVE DUST COVERS	no.[ ] at £	3.00 =
BUTTERFIELD'S DIARY	no.[ ] at £	3.99 =

FOR THE VIC

VICTAPE 1 (GAMES FOR ANY VIC)	no.☐ at £	1.99 = ...
VICTAPE 2 (FOR EXPANDED VICS)	no.☐ at £	1.99 = ...
SPECIAL OFFER: BOTH VICTAPES	no.☐ at £	3.00 = ...
GETTING THE MOST FROM YOUR VIC	no.☐ at £	7.95 = ...
GRAPHICS AID PACK FOR VIC	no.☐ at £	4.20 = ...
RAM VICSPRINT INTERFACE FOR VIC	no.☐ at £	45.95 = ...
SIMPLY WRITE VIC TAPE WORD PROCESSOR	no.☐ at £	34.95 = ...
SIMPLY WRITE VIC DISK WORD PROCESSOR	no.☐ at £	34.95 = ...
OSIRISAN VIC TAPE ASSEMBLER	no.☐ at £	17.95 = ...
OSIRISAN VIC DISK ASSEMBLER	no.☐ at £	22.95 = ...
GOLDEN GREATS PACK NO 1 (FOR 8K+ OR MORE)	no.☐ at £	6.95 = ...
GOLDEN GREATS PACK NO 2 (FOR 8K+ OR MORE)	no.☐ at £	6.95 = ...
GOLDEN GREATS PACK NO 3 (FOR 8K+ OR MORE)	no.☐ at £	6.95 = ...
SPECIAL OFFER: ALL THREE PACKS	no.☐ at £	19.95 = ...
STACK'S VICKIT 2 EPROM	no.☐ at £	4.90 = ...
STACK'S VICKIT 2 CARTRIDGE	no.☐ at £	11.25 = ...
STACK'S VICKIT 3 EPROM	no.☐ at £	4.90 = ...
STACK'S VICKIT 3 CARTRIDGE	no.☐ at £	11.25 = ...
STACK'S VICKIT 4 EPROM	no.☐ at £	4.90 = ...
STACK'S VICKIT 4 CARTRIDGE	no.☐ at £	11.25 = ...
RAM 'N' ROM CARTRIDGE	no.☐ at £	6.00 = ...
IEEE INTERFACE CARTRIDGE	no.☐ at £	26.40 = ...
VIC FOUR-SLOT MOTHERBOARD	no.☐ at £	13.80 = ...
8K STOREBOARD CARTRIDGE	no.☐ at £	20.50 = ...

PLUS OVERSEAS POSTAGE IF ANY

TOTAL ENCLOSED

Postal orders, cheques or money orders should be made payable to DEALS FOR READERS. Or use Access:

Please state size (S,M,L,XL,) when ordering shirts

NAME ◆ THIS IS YOUR DELIVERY LABEL – PLEASE PRINT CAREFULLY

ADDRESS

ACCESS CARD No DATE SIGNATURE

Deals for Readers, Commodore User, The Metropolitan, Enfield Road, London N1 5AZ. 01-241 2448

BUSINESS SOFTWARE

for

Commodore 8032/8096 and 64

PAYROLL **£99.50 + VAT**

Hourly, weekly and monthly basic, 7 rates for overtime or piecework, four pre-tax adjustments, including pension contributions and S.S.P., seven after tax adjustments, N.I. and all tax codes for use with printed payslips or plain paper. This payroll can be adjusted by the user when tax rates change.

INTEGRATED ACCOUNTS FROM £299.50 + VAT

Purchase Ledger with aged creditors, sales ledger with invoicing on forms to the user's own design, statements, aged debtors, etc, day books, V.A.T. analysis, stock control, automatic posting to the nominal ledger with manual override, nominal journals, trial balance, complete audit trail, management reports, profit and loss and balance sheet. Able to read payroll files.

LOW COST PACKAGE **£80.00 + VAT**

Purchase ledger, health ledger, invoice printing, stock control, nominal ledger.

Write or phone for details and complete software list to:

ELECTRONIC AIDS (TEWKESBURY) LTD
62 High Street, Evesham, Worcestershire WR11 4HG
Telephone: (0386) 49339

ZOOMSOFT

Commodore Software Specialists

Title	cass	disk	Title	cass	disk
BOULDER DASH	8.95	10.95	SPITFIRE ACE	9.95	12.95
BRISTLES	8.95	10.95	BEACH HEAD	9.95	12.95
ASRO CHASE	8.95	10.95	DALLAS QUEST	N/A	14.95
FLIP FLOP	8.95	10.95	BRUCE LEE	14.95	14.95
FORT APOCALYPSE	9.95	14.95	KNIGHTS OF THE DESERT	14.95	14.95
AZTEC CHALLENGE	8.95	12.95	COMBAT LEADER	14.95	14.95
ZORK I	N/A	11.95	TIGERS IN THE SNOW	14.95	14.95
ZORK II	N/A	11.95	BATTLE OF NORMANDY	14.95	14.95
ZORK III	N/A	11.95	BLUE MAX	9.95	14.95
STARCROSS	N/A	11.95	MULTIPLAN	N/A	99.95
DEADLINE	N/A	11.95	PAINTBRUSH	ROM	19.95
ENCOUNTER	9.95	12.95	PERSONAL ACCOUNTANT	25.60	N/A
FLIGHT SIMULATOR (Sublogic)	34.25	37.95	GRAPHICS BASIC	N/A	25.55
S.A.M.	N/A	41.95	HOUSEHOLD FINANCE	22.85	N/A
FORBIDDEN FOREST	8.95	12.95	LOGO	N/A	56.25
JETBOOT JACK	7.95	N/A	POLE POSITION	ROM	14.95
NATO COMMANDER	9.95	12.95	HARD HAT MACK	9.95	12.95
SUPER BASE 64	N/A	86.25	DAVID'S MIDNIGHT MAGIC	9.95	12.95
ADVENTURE CREATOR	ROM	29.95	PITSTOP	8.95	11.95
BEYOND CASTLE WOLFENSTEIN	N/A	27.95	DRAGON RAIDERS OF PERN	8.95	11.95
CASTLE WOLFENSTEIN	N/A	21.95	IMPOSSIBLE MISSION	8.95	11.95
MASTER TYPE	N/A	32.75	SPLUNKER	9.95	12.95
MASTER TYPE	ROM	32.75	ONE ON ONE	9.95	12.95
SPRITE MAKER	9.95	N/A	M.U.L.E.	11.95	14.95
LETTER WIZARD	N/A	34.95	JUMP MAN	8.95	11.95
MASK OF THE SUN	N/A	28.75	CHOP LIFTER	9.95	12.95
DROL	N/A	25.75	RAID ON BUNGELING BAY	9.95	12.95
SPELL WIZARD	N/A	34.95	FLYER FOX (Talkie)	9.95	14.95
B.C.'S QUEST FOR TYRES	9.95	N/A	REALM OF IMPOSSIBILITY	9.95	12.95
MR ROBOT	8.95	11.95	ARCHON	11.95	14.95

100's more titles available. Send S.A.E. for free catalogue. Send cheques, P.O. to:

Zoomsoft,
46 Huntsworth Mews, London NW1 6DB.
Telephone: 01-723 0562.

COMMODORE 64 OWNERS

MIDLAND COMPUTER LIBRARY

The First & Largest Commodore Library in the World (often copied but never equalled)

1 All the latest titles very two weeks
2 Hire your first two games absolutely free up to £2 in value
3 Life membership £6
4 Hire charge from only £1 inc p&p for full 7 days
5 No limit to the amount of games you can hire
6 All games originals with full documentation
7 Games, Business and Educational software
8 Return of post service
9 Lowest new hard and software prices in the UK
10 Join now on 14 day money back guarantee
11 Over 1,000 games in stock inc. many US imports

MIDLAND COMPUTER LIBRARY
31 Evenlode Close, Lodge Park
Redditch B98 7NA
Telephone 0527 23584

Can you afford to write for anyone else?

ocean

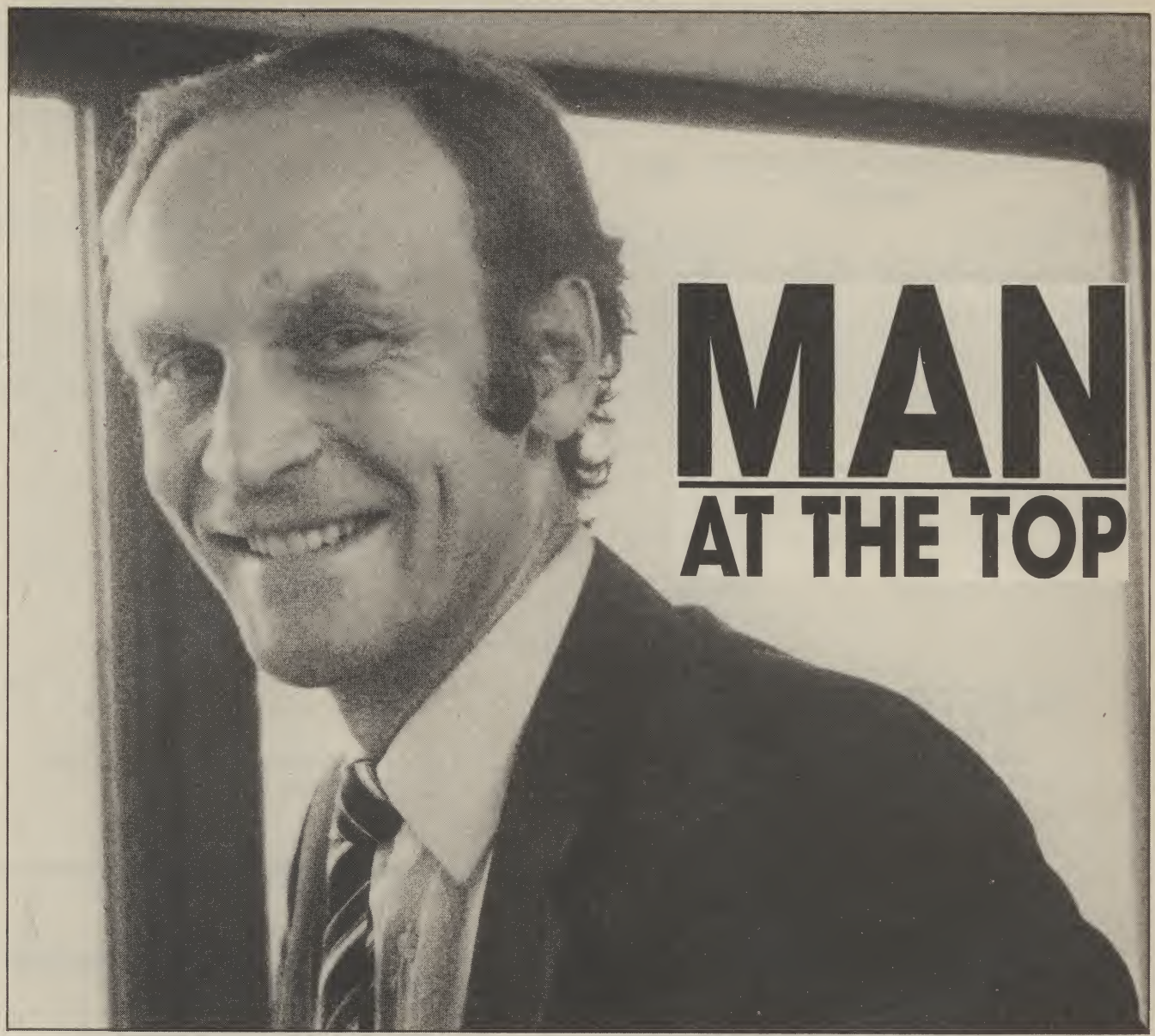
Leaders in Computer Games require programs and programmers

1. Original game programs for the Spectrum or Commodore 64 are urgently required:- Arcade, Strategy or Adventure. We pay top royalties or tailor a contract to suit your needs – WorldWide sales ensure the best possible deal.

2. Programmers to work in 280 or 6502 assembly language for contract work or translation coding – best rewards.

ocean

Write or phone in confidence to: Software Development, Ocean House, 6 Central Street, Manchester M2 5NS. 061-832 6633.



MAN AT THE TOP

Howard Stanworth, Commodore UK boss, interviewed

by Bohdan Buciak

A great deal happened at Commodore last year. The company released two new computers, the 16 and Plus/4, it moved to new and more prestigious premises in Corby, it received the Royal Warrant and saw the Commodore 64 yet again being voted 1984 Home Computer of the Year. But Commodore UK boss, Howard Stanworth, insists it's nothing to be complacent about. So how does he see the competition, how does he view Commodore's expansion and its increasing need to offer better customer service, and what's in the pipeline for this year? Bohdan Buciak trecked up to Corby to ply him with these questions.

Howard Stanworth doesn't profess to know a great deal about the technical ins and outs of computers, and he didn't get to sit in the big chair at Commodore because he's a technical genius (like Clive Sinclair?). He describes himself as an out and out manager: "I spent about seven years in managerial positions in the hi-fi and TV industry. I left that to run a plastics company, and then I spent three years as a director of Unigate Dairies."

But he reckons his experience and his eagerness to get back into 'consumer electronics' gave him the best credentials for the job. "There's a strong connection between hi-fi and home computers. Both have grown out of their 'buff' origins into mass-market industries." But it's more the differences that interest him. "Computers are more exciting; with hi-fi you have a passive relationship, computers give you scope for personal inventiveness" — more about that later.

Happy New Year

Last Christmas saw the cash registers ring out again for Commodore and, although Howard Stanworth will neither brag about that success, nor reveal how well Commodore actually did, he will say that the Corby plant was working "absolutely flat-out" sixteen hours per day, seven days a week to meet the demand for the whole of Europe.

Not surprisingly, the Commodore 64 remained the apple in Commodore's eye, accounting for the largest proportion of sales. But with the Christmas period over, is Commodore looking to cut the 64's price at some stage this year? Howard Stanworth's answer is

A hi-tech exterior for Commodore's new UK headquarters and manufacturing plant at Corby.

firm but disappointing: "There won't be any price reductions. You won't see prices going down like last year but you will see manufacturers putting in more features, more power — better value for money."

Sweet 16?

That brings us to the Commodore 16 which, selling at the same price as the Vic, must surely have made people in Britain turn their noses up at that much-loved yet veteran machine. But Stanworth has a surprising revelation: "The Vic is still in production here, but we're producing more for the world market. We won't stop producing until the demand ceases." That should ensure that existing Vic owners won't go short for service and repairs.

But how well did the 16 sell over Christmas and will it ever be as popular as the Vic? Again, Howard Stanworth is loathe to reveal sales figures: "It made a remarkably spirited entry into the market, and everything we've produced has been sold before it left the production line.

"I think the 16's success has taken a lot of people by surprise, excluding us. Many software houses said there was no longer a market for a 16K machine. We've proved them wrong, and at least a dozen software houses were getting a range of software ready for Christmas. Of course, we have a range of titles of our own."

So it looks as though Stanworth's faith in the 16 has paid off, despite initial criticism that the machine had no new facilities, offered less than the 64 and was really an example of technology standing still. For Stanworth, it was a question of what you're getting for the money. "We found that a lot of people were looking for a complete system for a little over £100 — the 16 starter pack gives you just that."

The 16 and Plus/4 have allowed Commodore to offer something both at the bottom and the top end of the home computer market. So how well has the Plus/4 been doing? Again, Stanworth shows characteristic reticence. "All I can say is that our expectations of demand for the machine have been fulfilled, but we've not been able to supply all the demand." And that's a lengthy way of not saying much.

Weighing up the competition

Despite all this vagueness, it looks as though the Christmas spoils were split fairly evenly between Commodore and Sinclair, establishing both at the very top of the market. "These two are now seen by users as the right products to have. Nobody likes to think they're buying a dead-end product. They want to be sure that they're buying from a company that's going to be around indefinitely" — a typically cautious way for Stanworth to say that Commodore is here to stay.

But so is Sinclair, always ready to do

continued on page 73

Britain's two most popular personal computers, the Commodore 64 and Spectrum are covered from basic to semi-expert in **Which Micro Magazine's Handbooks.**

Author Pete Gerrard, a regular columnist for **Which Micro**, has put together an accurate and practical guide to both computers, at £4.99 per book.

Many programs are included and both 160-page books are spiral bound for easy use and are available in all good bookshops from October 26th or direct through your letterbox by filling in the coupon below.

Please send me, post free ..... copies of the

Which Micro Commodore 64 Handbook ☐

Which Micro Spectrum Handbook ☐

I enclose remittance of £..... at £4.99 per book, made payable to EMAP Books.

Name .....

Address .....

.....

.....

.....

Send this coupon to:
EMAP Books, Bushfield House, Orton Centre, Peterborough, PE2 OUW.

Computer and Video Games, Britain's most popular computer games monthly, bring you two exciting new books for the Spectrum and Commodore 64.

Each 100-page book contains up to 30 **brand new** games checked and prepared by **Computer and Video Game's** regular contributors.

At £4.99 - the best value on the market at all good bookshops from October 26th, or direct through your letterbox by filling in the coupon below.

Please send me, post free ..... copies of the

Computer & Video Games Commodore Collection ☐

Computer & Video Games Spectrum Collection ☐

I enclose remittance of £..... at £4.99 per book, made payable to EMAP Books.

Name .....

Address .....

.....

.....

.....

Send this coupon to:
EMAP Books, Bushfield House, Orton Centre, Peterborough, PE2 OUW

MAN AT THE TOP

continued from page 71

battle: for example, its Spectrum Plus with its 'real' keyboard, was probably designed to make prospective Commodore 64 buyers think again. But Stanworth was not shaken: "I believe the customer is sufficiently educated to know that £50 extra for a keyboard is not good value". Or, to put it another way, you'd be silly to buy one.

On the other hand, the Amstrad machine does display very good value, but Stanworth doesn't see that as a serious contender either. "It hasn't got the distribution to affect our sales seriously." By that he means you won't find it in as many shops as the Commodore 64. Whether he feels it's better than the 64, he's not saying.

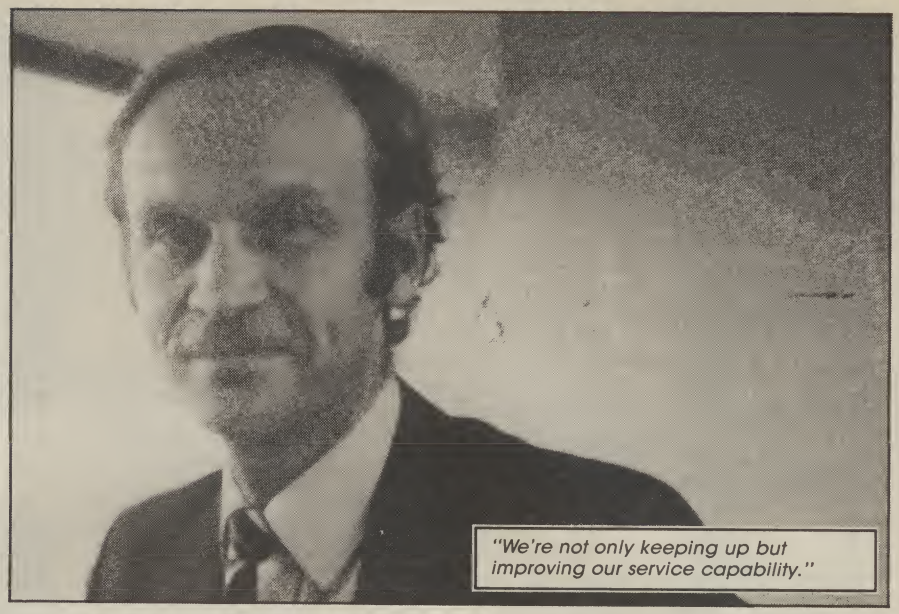
And that brings us to the people backing MSX, who must have spent a fortune bombarding you with adverts during the Christmas period. Howard Stanworth is more prepared to be outspoken here: "Criticisms that MSX is yesterday's technology and that it's over-priced are both absolutely valid and the reports are that the customer has recognised that.

"The Japanese are adopting the same tactics they've used in markets like hi-fi — producing established technology very well to try and get a market share. But I'm not complacent about MSX because you can't be sure what they'll do next year. They're gaining experience — but it's painful. We're not worried now but we don't take Japan lightly."

Neither is he taking lightly former Commodore International boss Jack Tramiel's acquisition of Atari and his drastic price-cutting of the Atari 800XL computer. But does it bother him that Tramiel is reputedly waging war on his former company? If it does, it's not showing: "Commodore dominates the world market. If you're going to be in the market, you've got to attack the market leaders; he'd have been pretty dumb to say he's attacking Coleco. Business is business — I've no axe to grind."

Servicing the user

With Christmas over, the number of people owning Commodore computers has increased again by leaps and bounds. That may be good for Commodore but not so good for its customers who need service and support, an area in which Commodore already has a less than admirable reputation. Stanworth asserts he's aware of the problem. "We almost tripled our sales last year, that's bound to give us growing pains." That may sound like an excuse, but Commodore did have moving to a new location to contend with. Still, can he assure new customers that they'll get the kind of support they need?



"We're not only keeping up but improving our service capability."

"We're not only keeping up but improving our service capability. We're now in much better shape to cope with the post-Christmas service requirements this year than last." In what way? "A lot of changes have accompanied our move to the new factory. We now have a customer repair turnover of 2-3 days. People don't realise that most of the delays occur when the computer is travelling to and from us. We've also got more technicians, better equipment and better administration to deal with those repairs." It sounds good — whether it will work out in practice is still to be seen.

Many people, though, just want help with technical problems. What's Commodore doing to smooth those troubled brows? Again Stanworth has an answer ready. "When we moved here, we restructured the Information Centre and created grades for which our advisors had to qualify. They have to be able to explain technical things in a non-technical way.

"But you have to draw the line somewhere. Given the nature of our business, I don't think we'll ever be able to answer all the questions thrown at us. There are extraordinarily bright users out there — and lots of them." To overcome that problem, Howard Stanworth suggests people write direct to Commodore UK with their highly technical problems which will be passed on to the Technical Department.

Future prospects

Having achieved so much already, what more success is still to be gained? It's rumoured that the company wants more success at the business end of the market. "Yes, we want to re-establish our presence as a front-runner in business computers. But that won't be detrimental to the home market. I believe that the markets are converging — in twelve months time you won't be able to make a rigid distinction between the two, both in technical specification and the way they're sold."

And the computer that may bridge that gap is the temporarily-named 'Lorraine' computer from Amiga, the American company Commodore has just bought out. Not surprisingly, Stanworth is keeping all the juicy details under his hat. "We don't talk about future products in detail".

One future area Stanworth will talk about is Compunet. He sees it as one answer to claims that the home computer market is well and truly saturated. "Communications networks and machine to machine communication is the next reason to buy a micro," he asserts. "I'm very excited about Compunet and the ways it can be enhanced. It's even got potential to give the user more processing power — and that may happen in the long term.

"But for most of us, it's a whole lot of fun because everyone can play. You're not just fed information, it's a community and a method of expression — people can put up what they like. That means Compunet has an organic life of its own, and that's what excites me."

Obviously Compunet is looking to attract lots of users and there is no inherent limit to its size. But, according to Stanworth, "Its success will not depend merely on the products and services available but on the inventiveness of its users. The software market has thrived on the inventiveness of usually young people — so will Compunet."

Howard Stanworth's view seems to be that the home computer market will never reach saturation point because there will always be reasons for people to buy them. This year the main attraction may be communications networks. Next year, there'll be different bait on the hook. If Howard Stanworth knows already what it will be, he's not telling.

TOOLKOOB

We can agree with Michael Richter that '*Advanced* BASIC *Programming* is not a contradiction in terms' (p.1). Probably large numbers of Commodore enthusiasts who work in Basic find themselves looking for ways of improving or speeding up their programs. And they know that very often these ways do exist.

It is for such that Mr. Richter writes. Unfortunately, though, although he has much to say about the hardware itself, there is little that tells us how to use it. Apart from some useful tips in chapter 3, *Mechanics of a Program*, there is little to help us with our own programming.

There are program listings. Some of these are long; all are written in lower case and with some unfamiliar instructions for control keys. (c-d) is obviously 'Cursor down', but what do we make of: 9020 print''(clr) (grph) (home) (home) (tset) (c-d) . . . . . (c-d) ''spc(39)'' (bset) (wht)'': poke . . .?

There is, apparently, a disk available to supplement the book, originally intended, it seems, to be supplied at the same time, but the word 'enclosed' is struck out in ball pen! Instead, we are asked to send $24.95 + sales tax to the publisher, or it can be charged to Visa or MasterCard. This might well help to achieve the object of the book, but makes it an expensive package.

George Pike

- **Advanced Basic Programming for the Commodore 64 and other Commodore Computers**
- **by Michael Richter**
- **Robert J. Brady Co. (A Prentice-Hall Publishing and Communications Company)**
- **£8.95**
- **Difficult to find the wood for the trees**

The front cover invites us to 'Find out what goes on inside the Commodore 64!' The back promises that 'By the time you've finished this book, you'll be fully prepared to study such advanced topics as machine language programming and arcade graphics. You'll not only understand how a computer works, but you will have learned powerful techniques that you can use in your own programs.'

Snooping is a technique for looking into the various memory locations of the computer. This is done through some 40 short programs which the reader keys in and, it is suggested, saves. These are easy to follow and each has a detailed explanation. Inevitably, some of the explanations are complicated; computers are complicated beasts.

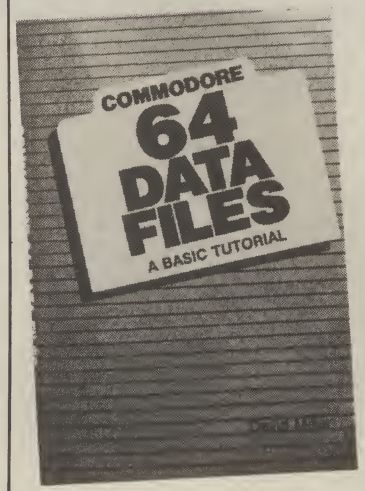
There is a lot of precise detail. For anyone who feels the need to understand what happens between the keyboard and monitor screen, this is a painless, and sometimes amusing, way of finding out.

For me, the promise on the back cover was largely unfulfilled. There is little about machine language and less on graphics. The book falls halfway — not enough for some, too much for others.

£14.50 for 205 pages is not cheap. Anyone content to write in simple Basic will find much of the detail unnecessary. To get into the realms of machine code and arcade graphics requires very much more information than Dr. Malitz's snoops will uncover.

George Pike

- **The Super Snooper Book. Find out what goes on inside the Commodore 64**
- **Dr. Isaac Malitz**
- **Datamost**
- **£14.50**
- **Falls halfway**



Close to the heart of anyone in computer marketing is a dream of millions of happy people doing Useful Things with their computers. Managing personal and small business records is certainly one such thing. Although computers like the Commodore Plus/4 include various data manipulating programs, older computers like the Commodore 64 need additional software to perform these functions.

There's no shortage of commercial programs to turn the dream of efficient data management into a reality on the 64, but writing your own programs is a different matter. The truth is that writing useful and reliable record-managing programs is hard; it's possible to know a great deal about Basic without having much idea about how to go about this task. The file-manipulating commands are sometimes awkward, but the real problem is figuring out how to structure the program once you've mastered the commands themselves.

This book is an attempt to make it possible for 'anyone' (to quote the Introduction) to write and use customised record-managing programs. I feel this to be a bit overstated, but it is at least an earnest attempt to satisfy a wide range of skill levels.

The book starts very gently, with definitions of files and related terms, some discussion about how Commodore implements files, and some simple examples of creating and using files on cassette or disk. More than 30 pages are devoted just to these few topics, and commands are firmly integrated into their programming contexts. You won't find this kind of detail in books covering a more general range of topics.

Next, the book plunges right into programming a mailing list filing system. The author has made a certain set of choices in setting up this and other programs. For example, he prefers separate programs, each under the control of a master program, for each filing function, rather than one main program with separate subroutines for each function. Experienced programmers will be interested to compare the various examples to their own approaches. And beginners will have the advantage of an approach that works. One objection I have to the programming technique is the use of the Basic INPUT command for keyboard input; this has too many limitations and pitfalls for the unwary user.

There are sections devoted to both sequential and relative (random access) files. Sequential files can be implemented on either tape or disk, but relative files require a 1541 or equivalent disk drive. I found that several lesser-known quirks about Commodore files are glossed over or not mentioned at all in the book. For example, there is an easy way around the 80-character limitation on input record length. Also, in the section on relative files I didn't find any mention of the fact that you can read part of a record, but you generally can't write just part without getting into trouble.

In summary, this book fills a real void in the literature available for the Commodore 64. It seems to me that there are too many books about game programming and virtually none about more 'serious' topics like this. The book is well-written and thorough, even if not as easy to follow or master as the author would like you to believe. If you have some background in Basic, or are working to get it, this book is absolutely essential reading before you try writing your own record-managing programs. At a price of £8.95 (for more than 400 pages) it must be considered a real bargain.

● *Copies of all the programs in the book, plus additional programs and documentation, may be purchased as a two-diskette set for $27.50 from: C-64 FILES, AEN, 9525 Lucerne St., Ventura, CA 93004, USA.*

David Brooks

- **Commodore 64 Data Files**
- **Prentice-Hall International Inc.**
- **£8.95**
- **Required reading on this topic**

NOW PROGRAMMING

YOUR HOME COMPUTER

IS AS EASY

AS READING THIS.

Let's face it, most 'beginner's guides' are anything but easy reading.

Now Dorling Kindersley have come up with a new way of learning BASIC that's unique, simple and down-to-earth.

It's called 'Screen Shot.'

Unlike ordinary guides, Screen Shot uses full-colour photographs of real computer screens to show instructions, program listings and displays.

So what you see on the screen in the book is precisely what you'll see on your own computer screen.

Which makes our programs easy to understand, easy to read and free from misprints or other sources of confusion.

The accompanying explanations are clear, practical and are written by experts.

You'll find there are Screen Shots for most popular makes of home micro.

Books 1 and 2 of each series form a complete guide to BASIC programming for that computer.

For the more adventurous programmer, Books 3 and 4 explore the creative world of computer graphics.

In the words of a reviewer in 'Big K' magazine, Screen Shots are "...clearly and expertly written with the best layout I have seen in a book of this sort...what you see is (for once) what you get. Outstandingly good and for beginners or semi-beginners: highly recommended."

The message is clear. If you really want to get into programming, get a Screen Shot.

With anything else, you won't be fully in the picture.

Screen Shot
PROGRAMMING SERIES

Screen Shot books available from larger branches of BOOTS, MENZIES, WH SMITH and other leading bookshops and computer stores. In case of difficulty, write to: Dorling Kindersley, 1-2 Henrietta Street, London WC2E 8PS.

DK Screen Shot Books 1 and 2 available for Commodore 64, Acorn Electron, BBC Micro, Sinclair ZX Spectrum, Sinclair ZX Spectrum+, Apple IIe. Books 3 and 4 available from April 1985.

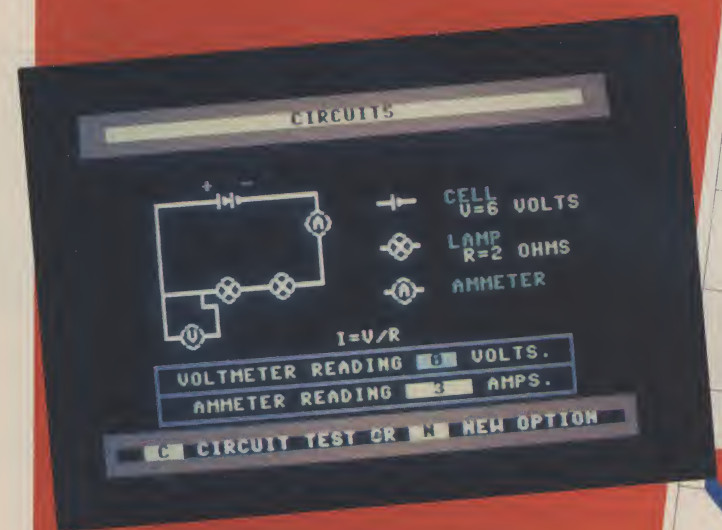
Dorling Kindersley Publishers Limited.

MAKING THE GRADE

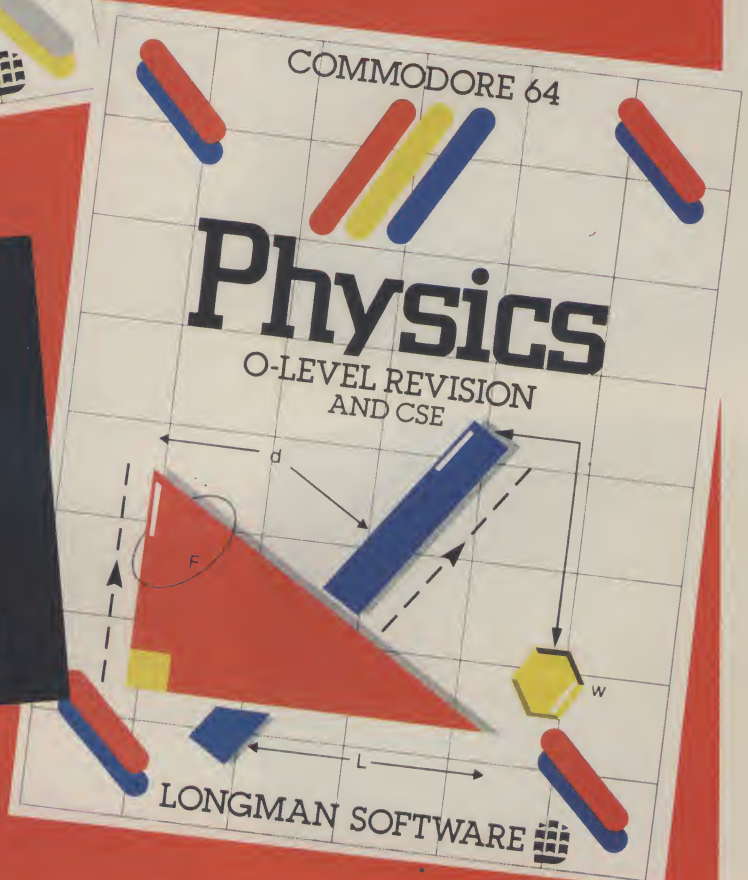
Longman 'O' Level revision programs reviewed

by Colleen Young

One of the programs in the French course lets you identify wine and cheese producing areas of France.



This graphic program, in the Physics course, looks at different aspects of Ohm's law in simple circuits.



Last month we looked at a wide range of educational software for tiny tots and budding juniors. But the Commodore 64 has also spawned a few programs for older children, exam revision software in particular. Longman Software now has a range of cassette-based programs covering Mathematics, Physics, Chemistry, Computer Studies and, just released, French and Biology. Colleen Young, herself a teacher, finds out whether these programs will put you top of the form.

Each subject covered in the range comes on tape and, rather annoyingly, only the latest French and Biology programs feature a turbo loader. Each program is accompanied by a slightly cumbersome leaflet which contains instructions for using the programs and notes on 'revision techniques'. Nothing really new here, though. You're told how to organise your subjects and time, how to learn most effectively and how to keep your interest going. The leaflet includes an eight-week revision planning chart and a checklist of subjects to be covered.

All tapes have a standard format in that there are five different programs for each subject covered. Although they're advertised as being suitable also for CSE candidates, I feel they'd be more useful for 'O' Level students.

The first program on each tape is called *Text*, it is simply a long list of references (something over 500) on the subject in question. You can, for instance, see a set of references on Geometry on the Mathematics tape or Heat on the Physics tape; the latter would produce a list of words associated with Heat: boiling, conduction, convection and so on. In this case, there were a total of nine words. But no actual definitions of the words are given.

The idea is to study the lists and look up any unfamiliar words. This is quite a good idea, but would, I suspect, have limited use, since you'll probably tire of it quickly. One problem is that not all the words will be familiar to a student in that they are not on his/her syllabus. (The same is true of course with revision books, though some do give advice on the different examining boards.)

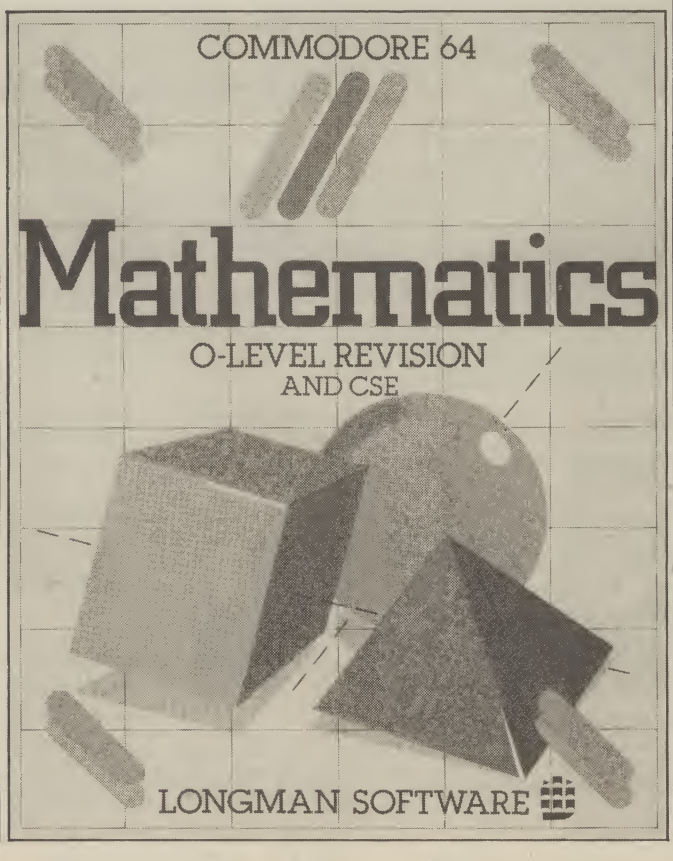
The maths pack

So let's start with **Mathematics**, the programs (apart from Text mentioned above) are: *Transform, Trig, Stats* and *Odds*. *Transform* allows you to plot a figure by giving the x,y coordinates; you can then transform the figure by using enlargements (including one-way stretches), reflections, rotations and translations. Compound transformations are also allowed.

However, this program is rather spoilt by two factors: the scale is fixed and a bit of an odd choice at that; also the positive and negative rotations are the wrong way round. This is a great shame as the program is otherwise excellent — the displays of the transformed figures are very good indeed.

Next comes *Trig*, which as its name implies tells you all about triangles including Pythagoras. It allows you to enter your own data to solve triangles as well as giving you demonstrations. *Stats* will produce pie-charts and bar-charts; these are easy to produce and very colourful.

The last program on the tape is on probability, which gives the program the opportunity to include some games to give you a breather. Unfortunately the explanations given here are not very comprehensive; they start simply but suddenly introduce new ideas out of the blue! Also too much emphasis is put on a chance of '1 in 2' say, whereas children learn that a probability has a value between 0 and 1.



Getting physical

On to **Physics**; the programs here are *Formulae, Circuits, Light* and *Machine*. *Formulae* gives you the opportunity to choose a topic, it will then give the relevant formulae together with rearrangements. You also have the option to enter your own data to find an unknown. The program contains a demonstration on solving equations which would have been quite nice but for a horrible error! It occurs in an equation for acceleration. Having given you the time-honoured advice which Maths and Science teachers must mutter in their sleep — 'you must do the same to both sides of the equation' — the program proceeds to multiply one side by T and at the same time divide the other side by T . . . things get worse, two Ts are then cancelled, both of which are in the denominator! This apart (though I find it hard to forget), it's a handy program if you are trying to learn a few formulae.

Circuits demonstrates Ohm's Law. The circuit diagrams are nice and it seems a useful program. For any electrical circuit given, you are told the values for current, voltage and resistance, then a second lamp is added and you are given the new readings. Then you're on to resistance; the program includes tests which follow on well from the tutorial section. One gripe is that text scrolls annoyingly slowly across the bottom of the screen.

The next program, *Light*, includes lenses, mirrors and ray diagrams. Well illustrated explanations are given followed by tests. The final program, *Machines*, discusses levers and pulleys. After a promising display of a pulley system what follows is rather less exciting (various formulae with explanations) though quite useful. My favourite part of this program was trying to throw a stone at a castle using the stone-throwing engine — a great incentive to learn about the Principle of Moments!

PRINTER BARGAINS — Prices include VAT + Carriage

SEIKOSHA GP100VC **ONLY £169**

MADE FOR THE COMMODORE EXCLUSIVELY 6 × 7 dot-matrix, 80 col, 30 cps, 154 chars inc Commodore graphics. Graphic, Double width & Standard Tractor feed, cable included.

EPSOM RX80FT **ONLY £264**

Shinwa CPA80.....£219
Daisy Step 2000.....£264
Smith Corona TP-1.....£219
Interfaces.....£22 & £45

BROTHER M1009 **ONLY £178**

HIGH QUALITY PRINTER AT LOW PRICE 9 × 9 dot-matrix, 80 col, 50 cps, 96 chars and over 100 other chars. Enlarged, condensed, italic, super & sub-script and more. Friction feed, tractor option.

BROTHER HR5 **ONLY £149**

Kaga Taxan KP810.....£299
Cannon PW1080A.....£319
Mannesmann Tally MT80.....£219

Payments to: **STRONG COMPUTER SYSTEMS**
Bryn Cottage, Peniel, Carmarthen, Dyfed
Tel: 0267 231246 for further details

ASSEMBLER 64. Professional development tool. Full assembler/disassembler allowing LABELS, VARIABLES, PSEUDO OPS and CONTROL COMMANDS. **£11.99**

DATABASE 64. Menu driven database. Max 30000 records, 255 bytes/record, 15 fields/record. CREATE database. ADD, INSERT, DELETE, AMEND records. SEARCH for records on any field including wild card matching(?,*). LOAD/SAVE databases to tape/disk. SCROLL through database. **£11.99**

Zoom Pascal	**£24.95**	*Practifile*	**£37.00**
Oxford Pascal	**£56.75**	*Calc Result - Easy*	**£47.00**
Superbase 64	**£79.00**	*French 64*	**£12.95**
P.S. Prog. Spreadsheet	**£59.00**	*German 64*	**£12.95**
Paperclip	**£75.99**	*French 64 & German 64*	**£16.95**
Multiplan	**£81.00**	*Koala Pad*	**£76.00**
Anatomy of 1541 d/drive	**£10.95**	*Synthy 64*	**£12.50**

All prices disk.

SAE full catalogue (over 100 programs, including databases, word processors, spreadsheets, compilers, education, accounting, utilities, books & more).

DYNAMITE SOFTWARE DEPT CU
BCM 8713 LONDON WC1N 3XX

Free Assembler 64 or game with every order over £15. Disk or tape.

COMMODORE 64 TOP TEN PROGRAMS ½ PRICE!

		(tick boxes)			(tick boxes)
Decathlon	9.99	☐	Bumble Bee	6.95	☐
Daley Thompson	7.90	☐	Ant Attack 3D	8.95	☐
Raid Over Moscow	9.95	☐	Zaxxon	9.95	☐
Trollie Wallie	7.00	☐	BC Basic	15.00	☐
Jump Challenge	7.95	☐			
Strip Poker	9.95	☐	Catalogue (enclose sae)		☐

HOW?

Buy them, try them, return them within one month – half your money back! Send cheques/P.O. to:

C&S COMPUTER SERVICES
144 Sutcliffe Avenue, Grimsby, South Humberside DN33 1AP

COMMODORE 64 DATABASE DATAFILE

Powerful options include: Print all/selective records, delete, amend, save, load, copy, alphanumeric sort, user defined fields, memory check, total numeric fields, multifield interrelational, global and between limits searches etc. Fully Menu driven with comprehensive easy to use instructions. Disk and cassette fully compiled. (Can be used with 1515, 1525, 1526 GP 100VC, MPS 801, MPS 802, DPS 1101 printers and 1520 printer/plotter if required and most centronics with suitable hardware interface.)

Outstanding value:- cassette £7.45, disk £10.25 fast delivery by first class mail. Send cheque/postal order to:-

A+C Software, Dept 3, 75 Oakthorpe Gardens, Tividale, West Midlands B69 2LF

NEW RELEASES FROM HARBOURSOFT

FAMILY FUN IN
FAULTY TOWERS

HELP BASIL KEEP HIS SANITY AND HIS HOTEL OPEN IN SPITE OF THE HEALTH INSPECTOR! HIT MANUEL AND INSULT SYBIL FOR EXTRA POINTS! ALL YOUR FAVOURITE CHARACTERS APPEAR IN THIS ADVENTURE ADAPTATION WITH A DIFFERENCE. GREAT FUN. COMMODORE 64 TAPE. SPECTRUM 48K TAPE £5.95.

ADULT ADVENTURE WITH
JOLLY JACK'S RUN A SHORE!

FOLLOW JACK ON HIS FIRST NIGHT ASHORE AFTER 3 MONTHS AT SEA WITHOUT BIRDS OR BOOZE! A FUN AND FROLLIC PACKED ADVENTURE WITH NAUGHTY BITS!! COMMODORE 64 TAPE £6.95. SPECTRUM 48K TAPE £5.95 (OVER 18's ONLY).

AND FOR THE REALLY BROAD-MINDED
LOVE BYTES!

ADULT FOREFEITS AND REWARDS GAME WITH ARCADE ACTION. "POSITIVELY THE NAUGHTIEST THING YOUR CBM 64 EVER DID!" COMMODORE 64 ONLY: TAPE £5.95 (OVER 18's ONLY)

CHEQUE OR POSTAL ORDER TO:
HARBOUR SOFTWARE
134 EAST WEARE ROAD, PORTLAND, DORSET
Tel: (0305) 820487
DEALER ENQUIRIES INVITED

ADVERTISERS!

Rent this space for **£50** or less per month

Contact: **Julie Madigan or Julia West**

01-251 622

CRAZYHORSE SOFTWARE

Presents
DISC-O-TECH

23 Firtree Close
Little Sandhurst
CAMBERLEY
SURREY
GU17 8HU

#180 SEC BACKUP	Three passes inc formating (180 secs)
#MULTI FORMAT COPIER	Duplicates Non 1541 discs Inc errors
#FAST FORMATTER	Format whole (14 secs) or part of disc
#READ ERRORS	Read all errors on track or whole disc
#WRITE ERRORS	Write 20 21 22 23 and 27 29 errors (look out for cheaper imitations)
#SUPERIOR FILE UTILITY	Copies, Scratches, Renames and many more
#DISC INTERROGATER	Read/write Sectors in Hex, Dec, Ascii

Other features :-Write Protect/Unprotect Repair and more
SUPPLIED WITH USER FRIENDLY INSTRUCTIONS

Mail Order Only
£19.95 inc P&P

FREE Disc/64 M/C Monitor Examine Modify Write to internal RAM or read ROM to first 100 orders normally £5.95

Also available MAGNIFICENT 7 Fast backup, Fast format, Filecopy, Disc/Tape Tape/Disc, Disc-TURBO tape-Disc £19.95 inc p&p

SAVE Money buy both for ONLY£29.95 inc P&P

STRICTLY FOR PERSONAL USE ONLY

Commodore 64 + Vic-20 Club

Trade supplied with full games and business software for all Commodore machines

All original software – business and games. New releases for CBM64 every two weeks

Send your name and address to go onto our mailing list

M. J. Seaward
St Olafs Road, Hill Head, Stratton, nr Bude, Cornwall.
Telephone: Bude 4179

S.O. SOFTWARE

COMMODORE 64, BBC 'B', ELECTRON
NEW SOFTWARE AT DISCOUNT PRICES
PLUS SELL BACK OPTION WITH 50% REFUND

All programs at least £1 to £5 off R.R.P.
Large and varied range of programs always in stock.
Some 'slightly used' software always available.

Write or phone for our stock lists:

S.O. SOFTWARE
13 Edge Avenue, Grimsby, South Humberside DN33 2DD.
Telephone: (0472) 751444. 24 HR ANSWER SERVICE

MAKING THE GRADE

The right Chemistry?

The **Chemistry** tape contains the programs *Elements, Mole, H2S* and *Reactivity*. *Elements* gives data on the most significant elements in the Periodic Table. The information may be retrieved in various ways, giving a good demonstration of the way a computer stores and manipulates data, as well as useful information. The student can compare aspects of various elements using the program.

Mole tackles the calculation of the mass of one mole of any given compound. Tests are provided as well as the explanations; quite a useful program. Then it's on to *H2S*, which is a game — great fun! You are given a task to perform, for example, to make up some compound. You also get a list of things you need. Collecting this equipment involves running round a lab opening cupboards, if the fume cupboard is opened you need to make a mad dash for the door to save yourself.

The final section, *Reactivity*, is a tutorial and test on the relative reactivity of a series of metal and non-metal ions. Ion exchange in solutions is also covered, as well as double decomposition. It is possible to enter your own compounds to see how they behave in solution — a well presented program.

Use your computer

On to the **Computer Studies** tape, which contains the programs *Visicode, Putin, Files* and *Logic*. Out of that lot, *Visicode* and *Logic* are the best by far. *Visicode* would be useful for teaching as well as revision; it demonstrates low-level languages very well indeed. An example program is given and the contents of the accumulator and registers shown as the program runs.

Logic shows how logic circuits operate and includes tests where the student has to give the output of a gate given the input. *Putin*, though, drove me mad; this is a collection of routines containing deliberate programming mistakes which the student is supposed to correct. A reasonable idea I suppose but I wasn't sure that all the effort was worth it when I ran the corrected versions. It would be easier to write your own routines in the first place.

Files covers what must be one of the most important aspects of the syllabus, demonstrating various file handling routines. It also lets you create files of your own. Perhaps I have been spoilt (we have *Superbase* at school) but this was a bit of a let down and does not really illustrate the topic well.

Test your French

The French revision tape opens with two programs, Lexis 1 and 2, which attempt to consolidate your knowledge of French vocabulary. Like the rest of the package, these programs are menu-driven, allowing you to choose from a range of fourteen themes. When you've done that, you can display all the words and test yourself either in French or English.

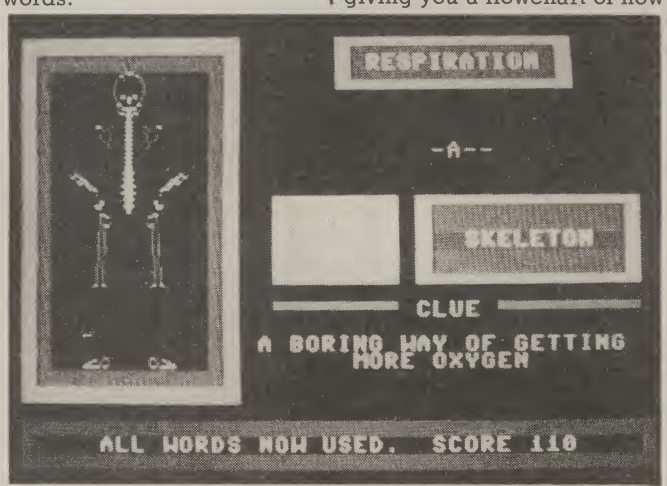
The third option lets you type in a word and then receive its translation. That may sound useful but, unfortunately, it's very slow and no substitute for grabbing your dictionary. Lexis 2 works in the same way but extends vocabulary to around 2,000 words.

You choose from a range of short 'stories', reading, understanding and almost memorising them because you must rewrite the story, bit by bit, being prompted by little graphic displays (rather basic) of what's happened. The stories are pretty uninspired, though. Like the earlier stages, special keys give you accents, circumflexes and cedillas. But there's some carelessness here — one accent uses the shifted 'slash' key, but you're not told it's shifted.

Onward to the last program for a little fun. So far the screen has shown only text. This program has both graphics (a lo-res map of France) and sound (the French national anthem). Despite that, this section is the least worthwhile. From a list of regions, towns, wines and cheeses, you can find out in which part of France they're located. Generally, the program does provide a novel and alternative way of overcoming the tedium involved in learning and testing your French vocabulary.

Getting Biology taped

The Biology program starts by giving you a flowchart of how you can organise revision in four main areas: plants, animals, general, theory/experiment. You're given a list of words and concepts in each area, with stars placed by the most important. For example, if you choose 'evolution' your most important concepts, according to the program, would be adaption, competition and natural selection.



Biology course — answer the questions and build a skeleton.

The next program, Verbs, lists seven regular verbs, three regular reflective verbs and 38 irregular verbs. The object here is to allow you to revise the various tenses and forms. You choose various options from the menu: as well as the present, imperfect, future, perfect, past historic and present subjunctive, you get the conditional and the various participles. Corrections to wrong answers are always highlighted in red.

Moving on to the Comprehension program, you'll find it's all getting more difficult.

The second program is an entertaining 'hangman' game. Again, you choose from a list of options including blood, bones, ears, kidneys. By answering a question correctly, you get to put a bone on the graphically depicted skeleton. The rules aren't explained, though; you must discover them through 'scientific method'. There's a nice touch here: when you've chosen your option, a skeleton head moves across the screen and munches the words.

Next to load is *Heredity* which looks at dominance, blending, sex-linked characteristics and punnet squares. Graphic guinea pigs abound here. You're presented with a mating and asked to predict the proportion of the F1 generation which would have each possible phenotype. The punnet squares show the expected results of fertilisation, taking green and yellow peas as the example.

Kingdoms is concerned with the animal and plant world, allowing you to build up the characteristics of a particular specimen by choosing from lists dealing with structure, nutrition, reproduction and size/visibility. So if you chose a single-celled structure that was parasitic, reproduced by division and was microscopic in size, you'd get the answer 'bacteria'. If the computer can't find a direct correlation, it will give the closest.

Finally, there's *Food*, a program that lets you calculate a person's daily energy needs by specifying weight and daily activity. There's also a game to test your knowledge of the water, protein, fat and carbohydrate content of various foodstuffs. That's complemented by a list of their calorific values.

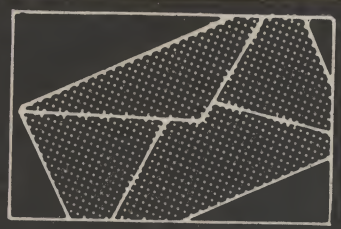
Conclusions

It will become apparent that the programs vary both in quality of material and presentation. But at the reasonable price of £7.95, there is certainly something on each tape to make it worthwhile.

It could be argued that most or all of the information presented in the courses could be found in revision text books. But that would deny the sheer novelty value that a computer must have over text books for children. Probably no child relishes revising for exams. These programs will make their less favourite subjects more palatable.

Letters Write away

This is your page: normally we write for you, but here we listen. Feel free to let us know what you think – about the magazine, about Commodore, about suppliers, about life, art, the meaning of existence or whatever. We don't print everything we receive, of course; but anything that might be of specific relevance or general interest will make it to these pages.



Good words for the 1520

In the December issue of *Commodore User*, one of your reader queries was, 'Which word processor gave support to the 1520 printer plotter?'. You replied that you didn't know of any word processor that gave support to the 1520.

This letter was written using a word processor and printing it out on my 1520 plotter.

The word processor that I use was supplied to me from A&C Software, 51 Ashtree Road, Tividale, Warley, West Midlands B69 2HD, tel: (021) 544 7135.

The program is fully menu driven, and at the completion of every option you are returned to the menu for further processing. The main menu options available are as follows:

- write text
- edit text
- print text
- save file
- read old file
- exit/clear memory
- memory check
- disk directory

It will also give you tab indent as well as right justification and text can automatically be centred.

The wordprocessor is called 'TEXTFILE' and in my opinion represents very good value for the £8.25 that I paid for it in September.

H. Pepper, 35 Amethyst Road, Bilton Grange, Hull HU9 4JE North Humberside.

The layout of your letter was certainly impressive — but it looks as though the program can't manage the '£' sign.

1520 again . . .

With reference to the article on the '1520 Printer Plotter', which appeared in the December issue of *Commodore User*, I would suggest that you are being robbed if you pay out £5 for a set of four pens. I can get the same pens in Newcastle for £3.95. Again if you go to your nearest 'Tandy' shop — they are called 'Radio Shack' in my area — the same pens are available at £1.99 for a set of three; either three black pens, or three coloured pens. Their paper rolls are also the same as Commodore's, and cheaper.

Mr Chris Durham is to be congratulated on his very clever program 'Biorhythms'. Please let us have more of them.

T.H. Brown, 92 West Farm Avenue, Longbenton, Newcastle on Tyne NE12 8RU.

And again . . .

In the December issue of *Commodore User* Tommy stated that there wasn't a word processor which supported the 1520 Printer Plotter. In actual fact "Easyscript" will support the 1520 without any modification. Simply proceed as follows: before loading "Easyscript" enter the following (in direct mode):

OPEN6,6,6: PRINT #6,1: CLOSE6

This sets the plotter to normal lower case/shifter upper case.

Then load "Easyscript". After typing your letter etc. press (f1) then O (output) D (device) 5 (rtn) for the plotter P (to print out).

P.S. You may have guessed that this letter was printed using the 1520 and "Easyscript"!

Steven Birks, 86 Birches Head Road, Birches Head, Stoke-on-Trent, Staffordshire ST1 6LJ.

Upgrade blues

With the demise of the Vic 20 there may be a number of your readers who are considering the 64 as a replacement. Let me sound a note of caution.

My original configuration was the Vic 20, 1515 Printer, Datasette and 1540 Disc Drive. On enquiry from the supplier I was assured they were all compatible with the 64. The supplier gave me a weird 'Open' command to use with the Disc Drive which was confirmed by CBM Corby. Needless to say it did not work. Further enquiry to CBM gave me a couple of 'Pokes'. This appeared to work until I attempted loading a database program. Yet another enquiry gave me the information that the 'Pokes' would not work if there were any 'Loads/Saves' in the program and the only way to ensure success was to change a chip in the 1540.

I loaded the 64 magazine tape from the Datasette and got a 60% 'Load Error' response. A friend loaned me his C2N and everything was perfect. This means I've spent £22.42 for a chip and £39.95 for a C2N. So, when a supplier tells you that the peripherals are 64 compatible — they're not.

C.K.R. Harris, 53 Martin Avenue, Stubbington, Fareham, Hants PO14 2RZ.

Obviously your supplier didn't know better or was leading you up the garden path. You're right, the 1540 suffers timing problems when linked to the 64. Commodore will sell you the upgrade chip for £19.95 but charges £35 to fit it for you. By the way, the 1530 Datasette and the C2N are identical inside. Both are compatible with the 64.

Chart flopper

After reading the December issue of the magazine I was disappointed to see that the charts did not include one Vic 20 program, I noticed that the Commodore 64 had its own charts and was included in the top thirty. Couldn't the Vic 20 have its own top 20?

I enjoyed the screen scene very much this week, with a picture of the game on screen it makes it easier to choose a good game.

I am glad to see that the magazine now includes a Vic 20 adventuring spot, I am a keen adventurer so you can see it was good news to me.

I enjoy your magazine very much so keep up the good work and I'll keep buying it.

Vaughan Morton, 25 Beaumont Lawns, Marlbrook Lane, Bromsgrove, Worcs B60 1HZ.

The very reason that Vic games hardly ever appear in the charts means we can no longer justify a Vic chart. I'm afraid the Vic Adventure Round-Up is not a regular column. Sorry.

Easy repeat

With regard to one of the Victuals you published in the December issue: 'Key Repeat' by William Fong. Try **POKE650,255** and hold down any key. Slightly shorter?

Nick Weatherhead, 58 Kingsbury, Aylesbury, Bucks.

High score

I was very glad to see the joint offer made by you and Melbourne House. I am an avid Shoot 'em up and Olympic maniac and have never ever attempted an adventure.

I read most magazines with envy when I hear of people who have completed this adventure and that adventure, so I decided why not try one? And for a game that looks a great prospect, but only cost 95p, how can you go wrong?

David Brown, 8 Albion Road, Walthamstow, London E17.

Send your letters to:
Write Away,
Commodore User,
30/32 Farringdon Lane,
London EC1 3AU.

COMPUTER AND VIDEO GAMES

The Fun computer magazine.

In the February issue of Computer & Video Games you'll find a special FREE 52 page Book of Games, featuring programs for the Commodore 64, Sinclair Spectrum, BBC, Electron, Atari, Vic 20, Dragon & Texas. At your newsagents on Jan 16th.

COMPUTER & VIDEO GAMES

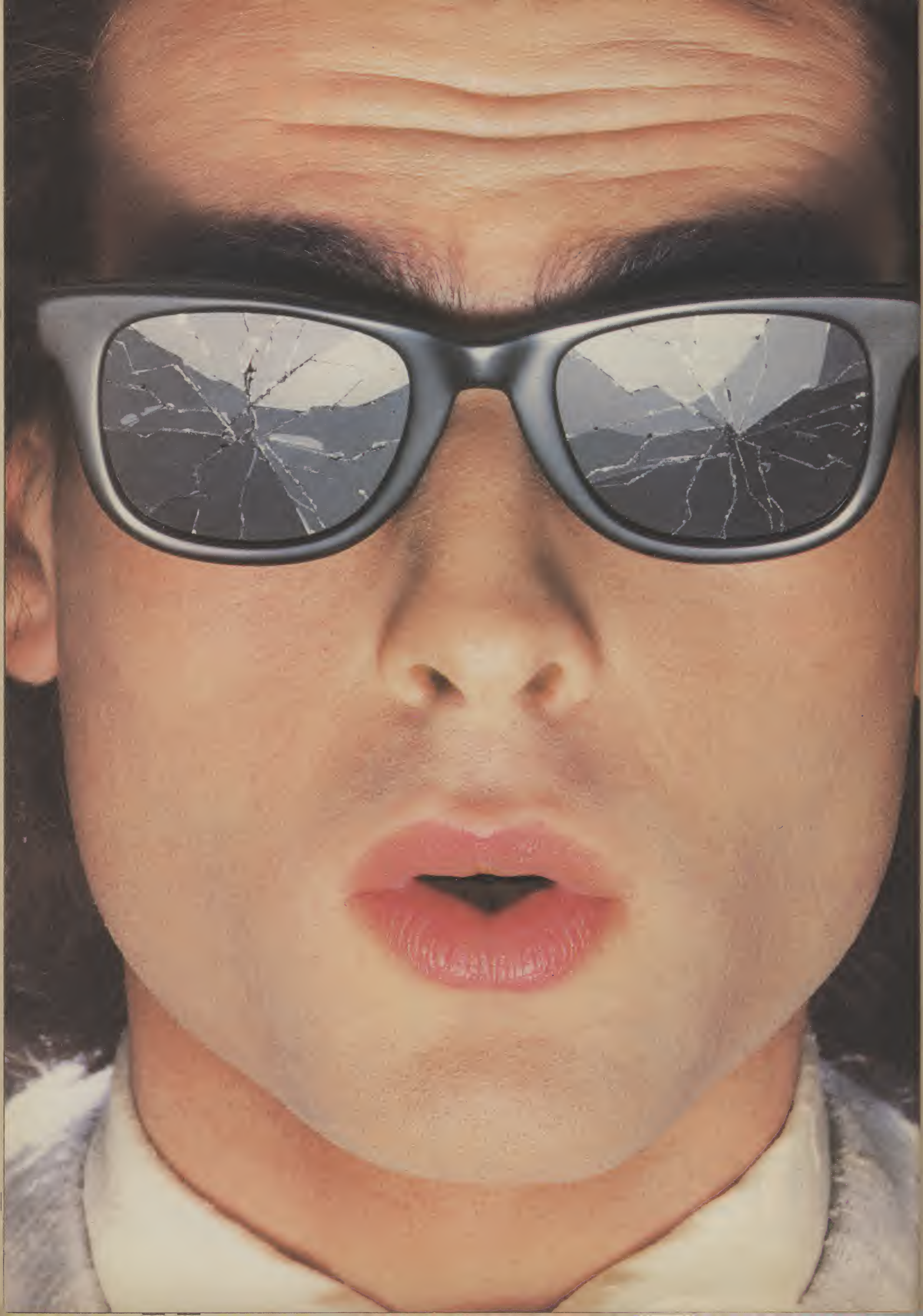
GET YOURS BEFORE SOMEONE ELSE DOES.

Who's been telling lies then?

How to build a lie detector/heart rate monitor. All will be revealed in February's issue of

ELECTRONICS & COMPUTING

At your Newsagent on Jan 13th.



You should see what he's just seen.

Micronet 800.

Stretching the mind of your micro far beyond its limits.

Micro evolution continues with this unique communications, informations and software system. Set on our mainframes nationwide.

Includes 30,000 pages and access to Prestel™ with its full range of services.

A tremendous Communications section that networks you to thousands of other members across the country. Send and receive electronic messages and graphics at a touch of a button.

And there's the Chatline service, Swapshop and Teleshopping.

Check with daily updates on the very latest computer news.

Micronet also has its own huge facts data base.

And a choice of up-to-the-minute software to download absolutely free.

For only £13 a quarter and just a local* telephone call whenever you want to connect up (that's only 22p per half hour at cheap rates) you could be part of Micronet.

The only accessory you need is a Modem.

A small price to pay to join the other visionaries on this exciting new system.

Fill in the coupon for more details and send to Micronet 800, Durrant House, 8 Herbal Hill, London EC1R 5EJ.

But be warned, Micronet 800's features are almost limitless and constantly updating. So maybe you'd be better to call in at Laskys, John Lewis, main Boots or your local Micronet 800 Action Station.

To feast your eyes on all the amazing things it can do.

To: MICRONET 800, Durrant House, 8 Herbal Hill, London EC1R 5EJ. Telephone 01-278 3143.
Please send me the full facts about Micronet 800.

Name_____

Make/Model of Micro_____

Address_____

_____

_____

Telephone_____

CU1

*For 97% of telephone users.

™Prestel is a trademark of British Telecommunications.

See Micronet 800 in action.

AVON

Bath. Boots, 1 Marchants Passage, Southgate. Tel: 0225 64402.
Bristol. Boots, 59 Broadmead, Tel: 0272 293631.
Bristol. John Lewis, Horsefair. Tel: 0272 29100.
Bristol. Laskys, 16-20 Penn Street. Tel: 0272 20421.
Keynsham. Key Computer Systems, 42b High Street. Tel: 02756 5575.
Weston-super-Mare. K & K Computers, 32 Alfred Street. Tel: 0934 419324.

BEDFORDSHIRE

Bedford. Boots, The Harpur Centre, Harpur Street. Tel: 0234 56231.
Dunstable. Dormans, 7-11 Broad Walk. Tel: 0582 38302.
Leighton Buzzard. Datasine, 59 North Street. Tel: 0525 374200.
Leighton Buzzard. Milton Keynes Music & Computers, 17 Bridge Street. Tel: 0525 382504.
Luton. Hobbyte, Unit 16, The Arndale Centre. Tel: 0582 457195.
Luton. Laskys, 190-192 Arndale Centre. Tel: 0582 38302.
Luton. Terry More, 49 George Street. Tel: 0582 23391.

BERKSHIRE

Reading. Heelas, Broad Street. Tel: 0734 559555.
Reading. Laskys, 118-119 Priar St. Tel: 0734 595459
Slough. Data Supplies, Templewood Lane, Farnham Common. Tel: 2 820004.
Slough. Laskys, 75 Queensmere Centre. Tel: 0753 78269.
Slough. MV Games, 245 High Street. Tel: 75 21594.

BUCKINGHAMSHIRE

Bletchley. R A M S Computer Centre, 117 Queensway. Tel: 0908 647744.
Chesham. Reed Photo & Computers, 113 High Street. Tel: 0494 783373.
Milton Keynes. John Lewis, 11 Field Walk, Secklow Gate East, Tel: 0908 679171.

CAMBRIDGESHIRE

Cambridge. Boots, 65-67 Sidney Street and 28 Petty Curry Street. Tel: 0223 350213.
Cambridge. Heffers Stationers, 19 Sidney Street. Tel: 0223 358241.
Cambridge. Robert Sayle, St Andrews Street. Tel: 0223 612929.
Peterborough. Boots, 40-42 Bridge Street, Queensgate. Tel: 0733 65352.
Peterborough. John Lewis, Queensgate Centre. Tel: 0733 44644.

CHESHIRE

Chester. Boots, 47-55 Foregate Street. Tel: 0244 28421.
Chester. Computer Link, 21 St Werburgh Street. Tel: 0244 316516.
Chester. Laskys, 7 The Forum, Northgate Street. Tel: 0244 317667.
Crewe. A S Wootton & Sons, 116 Edleston Road. Tel: 0270 214118.
Crewe. Midshires Computer Centre, 68-78 Nantwich Road. Tel: 0270 211086.
Ellesmere Port. R F R TV & Audio, 1 Pooltown Road, Whitby. Tel: 051-356 4150.
Hyde. C Tech Computers, 184 Market Street. Tel: 061-366 8223.
Macclesfield. Camera Computer Centre, 118 Mill Street. Tel: 0625 27468.
Macclesfield. Computer Centre, 68 Chestergate. Tel: 0625 618827.
Marple. Marple Computer Centre, 30-32 Market Street. Tel: 061-427 4328.
Stockport. National Micro Centres, 36 St Petersgate. Tel: 061-429 8080.
Stockport. Stockport Micro Centre, 4-6 Brown Street. Tel: 061-477 0248.
Widnes. Computer City, 78 Victoria Road. Tel: 051-420 3333.
Wilmslow. Wilmslow Micro Centre, 62 Grove Street. Tel: 0625 530890.

CLEVELAND

Middlesbrough. Boots, 88-90 Linthorpe Road, The Cleveland Centre. Tel: 0642 249616.

CUMBRIA

Kendal. The Kendal Computer Centre, Stramongate. Tel: 0539 22559.
Whitehaven. PD Hendren, 15 King Street. Tel: 0946 2063.
Workington. Technology Store, 12 Finkle Street. Tel: 0900 66972.

DERBYSHIRE

Alfreton. Gordon Harwood, 69-71 High Street. Tel: 0773 836781.
Chesterfield. Boots, 35-37 Low Pavement, Market Place. Tel: 0246 203591.
Chesterfield. Computer Stores, 14 Stephenson Place. Tel: 0246 208802.

DEVON

Exeter. Boots, 251 High Street. Tel: 0392 32244.
Exeter. Open Channel, Central Station, Queen Street. Tel: 0392 218187.
Plymouth. Syntax, 76 Cornwall Street. Tel: 0752 28705.
Seaton. Curtis Computer Services, Seaton Computer Shop, 51c Harbour Road. Tel: 0297 22347.
Tiverton. Actron Microcomputers, 37 Bampton Street. Tel: 0884 252854.

DORSET

Bournemouth. Brook Computers, 370 Charminster Road. Tel: 0202 533054.
Bournemouth. Lansdowne Computer Centre, 1 Lansdowne Crescent, Lansdowne. Tel: 0202 20165.
Dorchester. The Paper Shop, Kings Road. Tel: 0305 64564.

ESSEX

Chelmsford. Maxton Hayman, 5 Broomfield Road. Tel: 0245 354595.
Colchester. Boots, 5-6 Lion Walk. Tel: 0206 577303.
Grays. H Reynolds, 28a Southend Road. Tel: 0375 31641.
Harlow. Laskys, 19 The Harvey Centre. Tel: 0279 443495.
Hornchurch. Comptel Computer Systems, 112a North Street. Tel: 0402 446741.
Ilford. Boots, 177-185 High Road. Tel: 01-553 2116.
Southend-on-Sea. Computerama, 88 London Road. Tel: 0702 335443.
Southend-on-Sea. Computer Centre, 336 London Road. Tel: 0702 337161.
Southend-on-Sea. Estuary Personal Computers, 318 Chartwell North, Victoria Circus Shopping Centre. Tel: 0702 614131.

GLOUCESTER

Cheltenham. Laskys, 206 High Street. Tel: 0242 570282.
Cheltenham. Screen Scene, 144 St Georges Road. Tel: 0242 528979.
Gloucester. Boots, 38-46 Eastgate Street. Tel: 0452 423501.

HAMPSHIRE

Basingstoke. Fishers, 2-3 Market Place. Tel: 0256 22079.
Southampton. Business Electronics, Micromagic At Atkins, 7 Civic Centre Road. Tel: 0703 25903.
Southampton. Tyrrell & Green, Above Bar. Tel: 0703 27711.

HERTFORD

Hitchin. County Computers, 13 Bucklesbury. Tel: 0462 36757.
Hitchin. GK Photographic & Computers, 68 Hermitage Road. Tel: 0462 59285.
Potters Bar. The Computer Shop, 197 High Street. Tel: 0707 44417.
Stevenage. DJ Computers, 11 Town Square. Tel: 0438 65501.
Watford. Laskys, 18 Charter Place. Tel: 0923 31905.
Watford. SRS Microsystems, 94 The Parade, High Street. Tel: 0923 26602.
Watford. Trewins, Queens Road. Tel: 0923 44266.
Welwyn Garden City. DJ Computers, 40 Fretherne Road. Tel: 96 28444.
Welwyn Garden City. Welwyn Department Store. Tel: 0707 323456.

HUMBERSIDE

Beverley. Computing World, 10 Swabys Yard, Dyer Lane. Tel: 0482 881831.

KENT

Beckenham. Supa Computers, 425 Croydon Road. Tel: 01-650 3569.
Bexleyheath. Laskys, 15-16 Broadway Shopping Centre. Tel: 01-301 3478.
Bromley. Boots, 148-154 High Street. Tel: 01-460 6688.
Bromley. Computers Today, 31 Market Square. Tel: 01-290 5652.
Bromley. Laskys, 22 Market Square. Tel: 01-464 7829.
Bromley. Walters Computers, Army & Navy, 64 High Street. Tel: 01-460 9991.
Chatham. Boots, 30-34 Wilmott Square, Pentagon Centre. Tel: 0634 405471.
Sevenoaks. Ernest Fielder Computers, Dorset Street. Tel: 0732 456800.
Sittingbourne. Computer Plus, 65 High Street. Tel: 0795 25677.
Tunbridge Wells. Modata Computer Centre, 28-30 St Johns Road. Tel: 0892 41555.

LANCASHIRE

Blackburn. Tempo Computers, 9 Railway Road. Tel: 0254 691333.
Blackpool. Blackpool Computer Store, 179 Church Street. Tel: 0253 20239.
Burnley. IMO Business Systems, 39-43 Standish Street. Tel: 0282 54299.
Preston. 4Mat Computing, 67 Friargate. Tel: 0772 561952.
Preston. Laskys, 1-4 Guildhall Arcade. Tel: 0772 24558.
Wigan. Wildings Computer Centre, 11 Mesnes Street. Tel: 0942 44382.

LEICESTERSHIRE

Leicester. Boots, 30-36 Gallowtree Gate. Tel: 0533 21641.
Market Harborough. Harborough Home Computers, 7 Church Street. Tel: 0858 63056.

LONDON

W1. Computers of Wigmore Street, 104 Wigmore Street. Tel: 01-486 0373.
W1. HMV, 363 Oxford Street. Tel: 01-629 1240.
W1. John Lewis, Oxford Street. Tel: 01-629 7711.
W1. Laskys, 42 Tottenham Court Road. Tel: 01-636 0845.
W1. Lion House, 227 Tottenham Court Road. Tel: 01-637 1601.
W1. Rother Cameras, 256 Tottenham Court Road. Tel: 01-580 5826.
W1. The Video Shop, 18 Tottenham Court Road. Tel: 01-580 5380.
W1. Walters Computers, D H Evans, Oxford Street. Tel: 01-629 8800.
WC1. Transam Micro Systems, 59-61 Theobalds Road. Tel: 01-405 5240.
W5. Laskys, 18-19 Ealing Broadway Shopping Centre. Tel: 01-567 4717.
W8. Walters Computers, Barkers, Kensington High Street. Tel: 01-937 5432.
SW1. Peter Jones, Sloane Square. Tel: 01-730 3434.
SE9. Square Deal, 373-375 Footscray Road, New Eltham. Tel: 01-859 1516.
Lewisham. Laskys, 164 High Street. Tel: 01-852 1375.
SE13. Walters Computers, Army & Navy, 33 and 63 High Street, Lewisham. Tel: 01-852 4321.
SE15. Castlehurst Ltd, 152 Rye Lane, Peckham. Tel: 01-639 2205.
EC2. Devron Computer Centre, 155 Moorgate. Tel: 01-638 3339.
N7. Jones Brothers, Holloway Road. Tel: 01-607 2727.
N14. Logic Sales, 19 The Bourne, The Broadway, Southgate. Tel: 01-882 4942.
NW3. Maycraft Micros, 58 Rosslyn Hill, Hampstead. Tel: 01-431 1300.
NW4. Davinci Computer Store, 112 Brent Street, Hendon. Tel: 01-202 2272.
NW7. Computers Inc, 86 Golders Green. Tel: 01-209 0401.
NW10. Technomatic, 17 Burnley Road, Wembley. Tel: 01-208 1177.

MANCHESTER

Manchester. Boots, 32 Market Street. Tel: 061-832 6533.
Manchester. Laskys, 61 Arndale Centre. Tel: 061-833 9149.
Manchester. Laskys, 12-14 St Marys Gate. Tel: 061-833 0268.
Manchester. Mighty Micro, Sherwood Centre, 268 Wilmslow Road, Fallowfield. Tel: 061-224 8117.
Manchester. NSC Computer Shops, 29 Hanging Ditch. Tel: 061-832 2269.
Oldham. Home & Business Computers, 54 Yorkshire Street. Tel: 061-633 1608.
Swinton. Mr Micro, 69 Partington Lane. Tel: 061-728 2282.

MERSEYSIDE

Heswall. Thornguard Computer Systems, 46 Pensby Road. Tel: 051-342 7516.
Liverpool. George Henry Lee, Basnett Street. Tel: 051-709 7070.
Liverpool. Hargreaves, 31-37 Warbreck Moor, Walton. Tel: 051-525 1782.
Liverpool. Laskys, Dale Street. Tel: 051-236 3298.
Liverpool. Laskys, St Johns Precinct. Tel: 051-708 5871.
St Helens. Microman Computers, Rainford Industrial Estate, Mill Lane, Rainford. Tel: 0744 885242.
Southport. Central Studios, 38 Eastbank Street. Tel: 0704 31881.

MIDDLESEX

Enfield. Laskys, 44-48 Palace Garden Shopping Centre. Tel: 01-363 6627.
Harrow. Camera Arts, 42 St Anns Road. Tel: 01-427 5469.
Hounslow. Boots, 193-199 High Street. Tel: 01-570 0156.
Teddington. Andrews, Broad Street. Tel: 01-977 4716.
Twickenham. Twickenham Computer Centre, 72 Heath Road. Tel: 01-892 7896.
Uxbridge. JKL Computers, 7 Windsor Street. Tel: 0895 51815.

NORFOLK

Norwich. Bonds, All Saints Green. Tel: 0603 24617.

NOTTINGHAMSHIRE

Sutton in Ashfield. H N & L Fisher, 87 Outram Street. Tel: 0623 54734.
Nottingham. Jessops, Victoria Centre. Tel: 0602 418282.
Nottingham. Laskys, 1-4 Smithy Row. Tel: 0602 413049.

OXFORDSHIRE

Abingdon. Ivor Fields Computers, 21 Stert Street. Tel: 0235 21207.
Banbury. Computer Plus, 2 Church Lane. Tel: 0295 55890.
Oxford. Science Studio, 7 Little Clarenden Street. Tel: 0865 54022.

SCOTLAND

Edinburgh. Boots, 101-103 Princes Street. Tel: 031-225 8331.
Edinburgh. John Lewis, St James Centre. Tel: 031-556 9121.
Edinburgh. Laskys, 4 St James Centre. Tel: 031-556 1864.
Glasgow. Boots, 200 Sauchiehall Street. Tel: 041-332 1925.
Glasgow. Boots, Union Street and Argyle Street. Tel: 041-248 7387.

SHROPSHIRE

Telford. Telford Electronics, 38 Mall 4. Tel: 0952 504911.

STAFFORDSHIRE

Newcastle-under-Lyme. Computer Cabin, 24 The Parade, Silverdale. Tel: 0782 636911.
Stafford. Computerama, 59 Foregate Street. Tel: 0785 41899.
Stoke-on-Trent. Computerama 11 Market Square Arcade, Hanley. Tel: 0782 268524.

SUFFOLK

Bury St Edmunds. Boots, 11-13 Cornhill. Tel: 0284 701516.
Ipswich. Brainwave Micros, 24 Crown Street. Tel: 047 350965.

SURREY

Croydon. Laskys 77-81 North End. Tel: 01-681 8443.
Croydon. The Vision Store, 96-98 North End. Tel: 01-681 7539.
South Croydon. Concise Computer Consultants, 1 Carlton Road. Tel: 01-681 6842.
Epsom. The Micro Workshop, 12 Station Approach. Tel: 0372 721533.
Guildford. Walters Computers, Army & Navy, 105-111 High Street. Tel: 0483 68171.
Haslemere. Haslemere Computers, 17 Lower Street. Tel: 0428 54428.
Wallington. Surrey Micro Systems, 53 Woodcote Road. Tel: 01-647 5636.
Woking. Harpers, 71-73 Commercial Way. Tel: 0486 225657.

SUSSEX

Bexhill-on-Sea. Computerware, 22 St Leonards Road. Tel: 0424 223340.
Brighton. Boots, 129 North Street. Tel: 0273 27088.
Brighton. Gamer, 71 East Street. Tel: 0273 728681.
Brighton. Laskys, 151-152 Western Road. Tel: 0273 725625.
Crawley. Gatwick Computers, 62 The Boulevard. Tel: 0293 37842.
Crawley. Laskys, 6-8 Queensway. Tel: 0293 544622.

TYNE & WEAR

Newcastle-upon-Tyne. Bainbridge, Eldon Square. Tel: 0632 325000.
Newcastle-upon-Tyne. Boots, Eldon Square. Tel: 0632 329844.
Newcastle-upon-Tyne. Laskys, 6 Northumberland Street. Tel: 0632 617224.
Newcastle-upon-Tyne. RE Computing, 12 Jesmond Road. Tel: 0632 815580.

WALES

Aberdare. Inkey Computer Services, 70 Mill Street, The Square, Trecynon. Tel: 0685 881828.
Aberystwyth. Aberdata at Galloways, 23 Pier Street. Tel: 0970 615522.
Cardiff. Boots, 26 Queens Street & 105 Frederick Street. Tel: 0222 31291.
Cardiff. P & P Computers, 41 The Hayes. Tel: 0222 26666.
Swansea. Boots, 17 St Marys Arcade, The Quadrant Shopping Centre. Tel: 0792 43461.

WARWICKSHIRE

Coventry. Coventry Micro Centre, 33 Far Gosford Street. Tel: 0203 58942.
Coventry. JBC Micro Services, 200 Earlsdon Avenue, North Earlsdon. Tel: 0203 73813.
Coventry. Laskys, Lower Precinct. Tel: 0203 27712.
Leamington Spa. IC Computers, 43 Russell Street. Tel: 0926 36244.
Leamington Spa. Leamington Hobby Centre, 121 Regent Street. Tel: 0926 29211.
Nuneaton. Micro City, 1a Queens Road. Tel: 0203 382049.
Rugby. OEM Computer Systems, 9-11 Regent Street. Tel: 0788 70522.

WEST MIDLANDS

Birmingham. Boots, City Centre House, 16-17 New Street. Tel: 021-643 7582.
Birmingham. Laskys, 19-21 Corporation Street. Tel: 021-632 6303.
Dudley. Central Computers, 35 Churchill Precinct. Tel: 0384 238169.
Stourbridge. Walters Computer Systems, 12 Hagley Road. Tel: 0384 370811.
Walsall. New Horizon, 1 Goodall Street. Tel: 0922 24821.
West Bromwich. D S Peakman, 7 Queens Square. Tel: 021-525 7910.
Wolverhampton. Laskys, 2 Wulfrun Square. Tel: 0902 714568.

YORKSHIRE

Bradford. Boots, 11 Darley Street. Tel: 0274 390891.
Leeds. Boots, 19 Albion Arcade, Bond Street Centre. Tel: 0532 33551.
Sheffield. Cole Brothers, Barkers Pool. Tel: 0742 78511.
Sheffield. Laskys, 58 Leopold Street. Tel: 0742 750971.
York. York Computer Centre, 7 Stonegate Arcade. Tel: 0904 641862.

TOMMY'S TIPS

Tommy is Commodore User's resident know-all. Each month he burrows through a mountain of readers' mail and emerges with a handful of choice queries. The result, before you, is a wadge of priceless information and indispensable advice. There's even the odd useful tip as well.

***Dear Tommy,* I have just bought a 1520 printer/plotter and the Vic Type word-processing package but it will not work with the 1520. I've tried changing the program but it's in machine-code — big problem. Can I change the 1520's device number or do I need to buy another program.**

Another problem is the sub-commands involved in drawing with the plotter. Please could you explain them?

Regarding changing the device number of the 1520, it was covered in the review in the December issue. It involves adding a wire to the PCB so you will need a soldering iron (or a friend who can solder).

If you want a slightly better program to enable you to print directly on the plotter then try the following little program. It allows you to correct a line on the screen before sending it to the printer and you do not have to press Return at the end of each line (unless you want a new paragraph) although some long words may get wrapped round. To end the program, type '@'. (For those who would like to try this on an 80-column printer, alter the '40' in lines 60 and 90 to '80' and alter '35' in line 90 to '75'. You will also have to change line 10 to device 4 only and delete line 15):

```
10 OPEN4,6: OPEN6, 6, 6
15 PRINT#6, 1
20 PRINT"[CLR]": P$=""
30 GET A$: IF A$="" THEN 30
40 IF A$="@" THEN PRINT:
   PRINT#4, P$: CLOSE4:
   CLOSE6: END
50 IF A$=CHR$(20) THEN
   PRINT"[CUL] [CUL]";:
   T=T-1: P$=LEFT$ (P$, LEN
   (P$)-1): GOTO 30
60 IF A$=CHR$(13) AND T<40
   THEN PRINT
65 IF A$=CHR$(13) THEN
   PRINT#4, P$: P$="": T=0:
   GOTO 30
70 CH=ASC(A$): IF CH<32 OR
   (CH>93 AND CH<193) OR
   CH>218 THEN 30
80 PRINTA$;: P$=P$+A$:
   T=T+1
90 IF (T>35 AND A$="") OR
   T=40 THEN A$=CHR$(13):
   GOTO 60
100 GOTO 30
```

As for the 'sub-commands', these move the pen relative to either a fixed start point or another point which you can specify. They can best be explained as follows:

H — plotting equivalent of HOME, moves the pen to the start point without drawing (Pen up)

I — sets a new point of origin where the pen is (called the *relative* origin)

M — moves the pen to position X,Y with respect to the start point (Pen up)

D — as 'M' but with the pen down

R — as 'M' but the X,Y are with respect to the *relative* origin instead of the start point (Pen up)

J — as 'R' but with the pen down

If the *relative* origin is set at (50,0) then **PRINT#1, "M"; 50; 150** will move the pen to (50,150) with respect to the start point whereas **PRINT#1, "R"; 50; 150** will move it to (50,150) with respect to the *relative* origin which is the same as (100,150) with respect to the start point.

I hope that's not too confusing; the best way to learn is to try it out with a few simple programs.

***Dear Tommy,* I have tried everywhere to find out what the screen locations of the block graphics and colour for the 16K expanded Vic are. Please could you tell me?**

Also, could you tell me if there is any way of storing a picture on to tape from the visual display unit, and recalling it from tape? By the way, could you also tell me if there is any method of disabling the Run/Stop key?

The screen and colour maps for the expanded Vic are at **4096-4607** and **37888-38399** respectively. As for storing information from the screen, the following code will do it in Basic:

```
1000 OPEN2, 1, 2, "SCREEN
     DATA"
1010 FOR A=0 TO 511
1020 PRINT#2, PEEK (4096+A)
1030 PRINT#2, PEEK (37888+A)
1040 NEXT A
1050 CLOSE 2
```

To read the screen back in, use the following:

```
2000 OPEN2, 1, 0, "SCREEN
     DATA"
2010 FOR A=0 TO 511
2020 INPUT#2, SC: POKE 4096
     +A, SC
2030 INPUT#2, CL: POKE 37888
     +A, CL
2040 NEXT A
2050 CLOSE 2
```

These routines will not be particularly fast, since you would need to go into machine code for speed, but they will enable you to preserve a screen and recall it. Note that to use them you must ensure (for the 'save' at least) that the action of calling them does not put text on to the screen.

Therefore incorporate a line **GET F$: IF F$=CHR$ (133) THEN GOSUB 1000** somewhere in the main loop. Pressing **f1** will now cause the routine to store the screen. You must ensure that the tape recorder is already set up to record *and press the play/record buttons before pressing* **f1**, otherwise you will get the warning message on the screen which will be saved along with your masterpiece.

Lastly, **POKE 808, 251** will disable the RUN/STOP key — simple as that.

***Dear Tommy,* I am doing some development work with my Commodore 64 and 1541 disk drive for the manufacture of steel costings.**

The contents of the program I do not want to be available by listing on the printer or screen. Once the program is Run the 'Run/Stop' key has been disabled and I have made it cold start upon an error.

However, straight after loading, the program can still be listed; it needs to load and run in one operation. Is this possible for me to do?

This query gives me the chance to try out a short auto-run program that I have had in the back of my mind for ages. If you're sure no-one is looking over your shoulder I'll show you how to do it. Write your main program as normal and debug it. When it is running perfectly, store it on the disk as "P2 <DEL> <DEL>". With P2 loaded into the machine type the following in direct mode: **PRINT PEEK (46); PEEK (45)** and write down the two values that appear on the screen.

Now type NEW and then the following program:

```
10 POKE 46, X:POKE 45, Y:CLR
     (replace X and Y with the
     values you wrote down)
20 PRINT "<CLR> <CUD4>
   <CUR5> PROGRAM
   LOADING—PLEASE WAIT"
30 LOAD"P2<DEL><DEL>",8
40 END
```

(The <DEL> <DEL> are added by closing the quotes, then pressing 'SHIFT INST' twice, followed by the delete key twice. This ensures that the main program has no name and so cannot be loaded directly from the disk. Check the program *very carefully* and then

type the following in direct mode exactly as shown (replacing <CLR> by 'SHIFT CLR/HOME' of course):

POKE44, 0: POKE43, 198 <RETURN>
POKE198, 0: POKE631, 82: POKE632, 85: POKE633, 78: POKE634, 13: POKE198, 4: ?"<CLR>": SAVE "P1", 8 <RETURN>

Ignore the Syntax Error you will get and turn off the machine immediately after saving the program as the start of Basic has been altered (note that if you make a mistake in any of the direct commands you will have to start again from scratch). To run the loader program, type **LOAD "P1", 8, 1.**

This will alter the start of memory to include the input buffer. By POKEing 'RUN' into this buffer we have ensured that it will be actioned as soon as the program is loaded, making the first program auto-run. This then sets the memory to the correct size and auto-runs the second program. Note that this method will NOT work with the cassette as the cassette buffer gets overwritten when you try to load the first program.

***Dear Tommy,* I have seen a number of ads for a 64K Ram card for the Vic 20. The reference guide says the maximum expansion is 32K. Can the Vic be enhanced to 64K or are there drawbacks?**

If a 40/80 column card was also added, would this make the Vic 20 a viable word-processing/business computer comparable to the 64 (assuming the addition of other peripherals and software being available)?

The Vic *cannot* be expanded to access more than 27.5K from Basic or 34.5K from machine code. What these 64K RAM packs do is to give you *alternative* memory locations in the form of 'pages' of memory that can be swopped in and out. They have their uses, since some of them will allow you to store more than one program in memory and switch between them at will, thus saving valuable time loading from tape. However, you still have to load the programs in initially unless the RAM also has some form of battery back-up. What these RAM packs will *not* do is to turn a Vic 20 into a Commodore 64.

With regards to a 40/80 column board, these can be extremely useful if you want to use a Vic for regular wordprocessing or stock accounts and spreadsheets, for use in a small business and you don't want to upgrade to a bigger computer. While they will not give the memory of a 64, thus limiting the amount of data that can be stored at one time, this just means that disks are a must for serious use.

Software *is* available for such boards, but usually only from one company since each board works slightly differently and the software is usually written specifically for it. You will also require a monitor, since none of these boards will work with a standard TV.

These are just two of many queries relating to User Defined Graphics on the expanded Vic. One of the problems with redefining the character set on the Vic is that it can only be done within the original 5K RAM that is permanently in the machine. With the unexpanded or 3K Vic there is no problem since you can position the new character set under the screen memory and move the top of Basic down.

Unfortunately when the Vic goes over 8K RAM then the screen moves down below Basic, leaving no room for the character set. The only solution is to move the bottom of memory up and fit the new character set between the screen and start of Basic. Because you are now moving the start of Basic it is not possible to do it from within a Basic program.

What you need to do is write the program from the new start position, having altered it in direct mode, then save the program and reload it using the command **LOAD"filename",1,1.** However, unless you use a m/c loader program which alters the start of Basic pointers you will still have to do it by typing the commands before loading the program; there is no easy alternative in Basic.

To move the start of Basic type:

```
POKE44,24: POKE43,1:
POKE642,24: POKE641,0: CLR:
POKE6144,0
```

To move and relocate the character set use the following code in your program:

```
10 FOR A=0 TO 1023
20 POKE 5120+A,
   PEEK(32768+A)
30 NEXT A
40 POKE 36869, PEEK(36869)
   OR13
```

Note that the character set must begin on a 1Kbyte boundary. Since the screen starts at 4096, the next boundary is 5120. The minimum character set requires 1024 bytes, hence Basic has been moved to 6144; if you want more than 64 characters you can move the start of Basic even higher.

Ad Index

Adamsoft 21
Adventure International 45
Anger 46
Anirog ..... IFC & 49
Audiogenic ..... OBC
Beyond 35
Brother 17
Calco ..... 46 & 54
Cheeta 25
Commodore 3
DACC 40
Deals for Readers 65, 66, 67, 68
Digital Integration 58
Dorling Kindersley 75
Electronic Aids 69
Evesham Micros 54
First Publishing 12
Handic Software ..... 20 & 21
Holt Saunders 7
Integrated Systems 20
Interface 24
J & J Gilmour 20
Kosmos 50
Llamasoft 34
MPS 46
Melbourne House ..... 33 & 57
Micro-de-bug 54
Micronet 82, 83, 84
Midland Computers 69
Mikrogen 14
Mirage 16
Mushroom Software 40
New Generation 64
Ocean ..... 10 & 11, 69
Oxford Computing 50
SMT 9
Six 4 Supplies 38
Sixty 4 Plus 46
Sixty 4 Software 6
Sophisticated Games 40
System 3 4
Taskset ..... IBC
Ultimate 18
Whitby Computers 63
Zoomsoft 69

Commodore User is published twelve times a year by EMAP Business and Computer Publications Ltd.

Subscriptions and Back Issues are handled by B.K.T. Subscription Services, Dowgate Works, Douglas Road, Tonbridge, Kent TN9 2TS: Telephone 0732-351216.

Annual subscription (UK) £12.00, (Eire) £IRL 17.00, (Europe) £18.00, (Rest of the World) £32.00.

Printed by Garrod & Lofthouse Ltd, Crawley; Photosetting and reproduction by Bow-Towning Ltd, London EC1.

Material is accepted on an 'all rights' basis unless otherwise agreed. Enclose SAE if you want the return of original manuscripts and photographs.

All material © copyright Commodore User 1985 and contributors. No part of this issue may be reproduced in any form without the prior consent in writing of the publisher, other than short excerpts quoted for the purposes of review and duly credited. The publishers do not necessarily agree with the views expressed by contributors and assume no responsibility for errors in reproduction or interpretation in the subject matter of this magazine or any results arising therefrom.

ISSN 0265-721X

CLASSIFIED

Vic-20 Word Processor. Victext. Powerful word procesor.
Facilities include:- Large text buffer, auto centre text, variable tab, insert, amend, delete, copy, move text, word count, right justify, etc. Fully menu driven with comprehensive easy-to-use instructions. Needs + 16K expansion min. Great value: cassette £6.95, disk £9.45.

Vic-20 Data File. Takes the place of any card index.
Facilities include:- save, loadfile, full sort, print all/part records, amend, delete records, memory remaining, etc. Needs +8K expansion min. Cassette £4.50. Both programs can be used with all direct connect Vic printers inc 1520 printer plotter. Fast delivery by first class mail. Send cheque/PO to: A&C Software, 75 Oakthorpe Gardens, Tividale, W. Midlands B69 2LF.

Vic-20/CBM64 Software Hire
No membership fee! Quality titles (eg Skyhawk, Jetpac, Flight 015) from 50p per week. Already 500 delighted members. Join them now. All games originals. Send 2 × 17p stamps for your Hirekit (please state which machine) to:
VSH(CU), 242 Ransom Road, Mapperley, Nottingham

Attention all Vic-20 and CBM64 users. Whether you're a dealer, user group, individual or software library, do you really know what commercial software there is for the Vic and the CBM64? Well it's taken us ages to come up with the document, it covers games, utilities, education, books and business software. It gives descriptions, hardware, price, independent ratings and suppliers with addresses etc. For delivery asap send cheque/PO for £5.00 UK or £6.00 overseas to Cementis Information, Box 015.

Wanted 1541 disc drive with all leads and manuals for cash. Also software to swap or sell. Lots of titles. Such as Raid Over Moscow, One on One, Count Down to Meltdown. Tel Grimsby 74584 and ask for Martin or send your list: 157 Crosby Road, Grimsby, South Humberside DN33 1LY.

CBM64 penpals wanted, to swap software and tips. Send letter (with list) to Tore Afdal, Florasv. 31, 1890 Rakkestad, Norway.

Commodore SX64
Portable Business Computer for sale. 64K Ram. Integrated 5" screen. Single disc drive, £850.
MPS 801 Printer, £250.
4 Business Software Packages, £150.
Call Marlow (06284) 72320 Anytime or Marlow 71431 after 4pm.

CBM 64 owner Wants to swap software with European, Australian and American owners. Have many good tiles. Please write. (All letters answered). Send your lists to: Jonny Mikalsen, Box 124, 5460 Husnes, Norway.

VIC-20 owners, interested in languages (French, German, Italian, Spanish)? If so send SAE to:- M. Lenihan, 109, Clive Road, Fratton, Portsmouth, Hants, PO1 5JD for your free brochure. All software titles only £3.00

For Sale interface for VIC 20 uses any standard computer compatible cassette recorder £10.00. Contact Matthew Metcalf, 2 Coalbank Road, Hetton le Hole. Telephone 265416.

VIC-20 plus cassette recorder switchable 4-slot motherboard 16K RAM 3K super expander, manuals, magazines and games. Very good condition. £150 ring Jane on Cambridge 207767.

DRIVE A TRAIN
Drive in your own home, such famous trains as The Flying Scotsman, Cornish Riviera, Master Cutler and The Royal Scot. Exciting and addictive games for the rail enthusiast and layman alike.
Our latest game — ROYAL SCOT. From Euston to Crewe with a choice of motive power — class 87, Advanced Passenger Train and class 86. CORNISH RIVIERA. From Paddington to Exeter with a stop at Reading hauled by H.S.T., class 47 or class 50. MASTER CUTLER. St. Pancras to Leicester fast or stopping (6 stations) behind Peak class 45, 47 or H.S.T. FLYING SCOTSMAN. A fast dash from Kings Cross to Doncaster behind the legendary Deltics, H.S.T. or Brush 47. All of the above games available for the BBC 'B', CBM64 and Spectrum 48K price £7.50 each inc. P&P.
Available from:
DEE-KAY SYSTEMS (Dept CS)
18 Salford Close, Woodrow South, Redditch, Worcs B98 7UN.

VIC-20 software, maze gold (new) £4.50, Arcadia £2.00, Duck-shoot, Sub Hunt £1.00, Cassette 50, £5.00. Tel: (0504) 267901, after 6pm, write S. O'Neil, 12A Blighs Lane, Derry, Northern Ireland.

10 Disks unused, BASF, 40 track, single density. £16.00.
Commodore Macro Assembler, hardly used, £15.50. Ring Mark Asteris on Emsworth 5897, or write to 10A Park Crescent, Emsworth, Hants.

VIC-20 voice synthesiser 16K RAM Pack basic part 1 & 2 education programs, games + more, all for £50. Steven Ballard, Birchetts Lodge, Stockland Green, Speldhurst, Kent, or phone Langton 3173, now.

CBM 64 software for sale: Superbase 64 — £45, Easyscript — £25, RS232 Interface for Smith-Corona TP-1 printer £15, Grandmaster £5, Zaxxon £4, Forbidden Forest £4. Others. All ½ price. Ring Albert (0865) 54084 (eves+w-end).

CBM64 software to swap. Titles include Up and Down, Ghostbusters, Bruce Lee, Pogo Joe, Popeye, Cyruss, Sentinel, Mikro Assembler and many more. Ring Slough (Berks) 32762 and ask for Raj

Perfect condition Vic-20 not yet a year old, recently serviced, still under guarantee, sold with cassette deck, intro to basics and 54 games for just £100. Phone (01) 368-3873 after four o'clock, Monday to Thursday.

Penpals wanted VIC20 to exchange games programs ideas etc. Please write to Paul Hallas, 5 Beatrice Ave., Bebington, Merseyside L63 5JS.

Pen Pal wanted to swap games and tips for the CBM 64. Must be a boy, age between ten and thirteen. Write to A. Soord, 4 Westfield Close, Laverstock, Salisbury, Wilts., SP1 1SG. All letters answered)

64 software to swap. 100's titles, all types. Disk users please send list to Stephen Howard, 53 Valley View Road, Rochester, Kent or phone 0634 812833 for a fast reply.

VIC-20 Penpal wanted 10 year old boy would like a penpal anywhere, but especially abroad. Write to Adrian Borg, 31 Knutsford Road, Moreton, Wirral, Merseyside L46 8TN.

CBM64 VIC20 correspondents required user group to user group also software exchange if possible

USA — C64 user group would like to ex-software and ideas with European groups or individuals. Prefer disk, but will consider tape. Respond to: Metro-Area Commodore Club. Box M, Mendota, Minnesota, 55150 — U.S.A. Or call: (612) 778 8188

CBM-64 user in Southern Africa wishes to swap software with users anywhere in the world. Have over 300 titles. To: Stanley Levitt, 3 Waverley Road, Savoy, Johannesburg, 2192, South Africa

Italian CBM 64 owner wants to exchange programs on disk with owners in all the world. Please write to: Alberto Borgini, Via San Rocco 34, 21013 Gallarate (Varese), Italy.

Unused easyscript disc plus manual, £50 or exchange for Superbase 64. Thomas, 23 Wordsworth Avenue, Cheltenham GL51 7DY

VIC-20 starter pack. Things included: VIC Book plus 14 games, value £250. will sell for £120 o n.o Ian Marshall, Kilbirnie 683816.

VIC-20 for sale — computer alone — all offers considered. Also Voo Doo Castle and Adventureland cartridges, £6 each. Many cassette games also for sale — unexpanded VIC only. Cheap prices. Phone 021 353 6383

VIC-20 starter pack, over 140 worth of software, introduction to basic 2, Quickshot 2, Joystick, altogether worth over £300. Yours for only £150 o.n.o. Telephone Coventry (0203) 360 950

VC-1525 Graphic Printer (as new), paper width up to 10". Suitable for VIC20 or 64 and complete with 'Simply Write' word processor for VIC20. Also includes 'Buti-Plus' programming aid cartridge with 3K memory expansion and machine-code monitor. Bargain at £160 o.n.o. M. Shaw, 032 879339

CBM 64 good condition, £180 Disc Drive 1541, £170. Easy Script plus 6 games on disc £40. Grandmaster Chess tape, £5. Games disc with many games. Sell separately or the lot, £390. Write to T. Matthews, 2, Spring Lane Cottage, Sonning Eye, Nr. Reading, Berks RG4 0TZ

VIC20, (75) C2N. Recorder + £25 cassettes for only £50. 3 cartridges, £15, switchable 16k RAM, £30. Intro to Basic, £8 or the lot for £170.

VIC20 plus C2N cassette, 16k rampack, over £100 software including Jet Pack, Pharaoh's Curse and more. Maths CSE Revision and intro to basic part 1. Phone Mike Bedworth 313650. Price £150

CBM 64 software for sale Cluedo Cassette) and Colossus Chess (disk), new at half price £6 each Phone 0702 520624.

Commodore 1526 (MPS802) Dot Matrix. Printer bargain, £225. Commodore dual disk drive 3040 Slight fault. Offers to David, Tel. Hornchurch (040-24) 55733. Evenings and weekends

MPS801 Printer for VIC or CBM 64 unused condition, £140 Ring 0203 490527, evenings

Monitor — Audiogenic machine code monitor plus Centronics interface for the VIC 20 on cartridge! Normally £19.95. But only £10.00 o.n.o. Contact Paul Bradley, 2 Jones Street, Birtley, Tyne and Wear.

CBM 64 Software Depth Charge, £3.90; Sooper Froot, £3.90; Arcadia, £4.00; Falcon Patrol, £4.00; 64-tape. Computing No. 1,2, £1.50 each; VIC20 Jetpack, £3.00; Cosmic Battle, £1.50; Crazy Kong, £4.50. Maths 1, £6.90. All original. Contact C. Duncan, 10 Chestnut Grove, B'ton, Northwich, Cheshire.

C64 software for sale. Manic Miner, Gridtrap, Beach Head, Hustler, Flight Path, £5 each or buy all together for £23. Phone (0348) 872216 and ask for Stuart.

Arrow 64 and Diary 64 cartridges watned also Stack Motherboard. Details to L. Garratt, 98 Victoria Road, Eccleshill, Bradford BD2 2DD.

CBM games for sale, £2.50. Cartridges, £4.00; Utility, £4.00; VIC 20 cassettes and Utility for £2.00. Send for free list (SAE). To S. Findlay, 297 Blackwell, Carlisle, Cumbria CA2 4RW or Tel: 33694.

CBM 64 software to sell American and British over 300 titles at reasonable rates. Popeye, Gyruss, Starwars. Phone 0462 59460 after 5pm or PO Box 27, Hitchin, Herts. Ask Ravinder.

CBM 64, cassette unit, cover, programmers manuals. Software including Hobbit and book. Plus lots of Mags. Bargain at £200. Ring Seamus, 582-1158 (6pm-8pm)

Commodore 1520 printer plotter. Boxed — as new. Only used once. Still under guarantee. £169.99 new. Bargain at £85. Gray, 35 Gordon Avenue, Prestatyn, Clwyd.

1520 Printer Plotter for sale. Excellent condition, under guarantee and complete including extra paper and pens only £65 inc. p&p and insurance. Also CBM 64 software including Manic Miner, Twin Kingdom Valley, Stellar Triumph, Attack of Mutant Camels, Revenge of Mutant Camels, Wallie in Rhymeland, Quest of Merravid all originals just £4 each. Write: John Twiddy, 65 Holly Avenue, Wallsend, Tyne & Wear

VIC20 starter pack, 16K expansion programmers aid, Super expander, M/C. Code Monitor, Stack Motherboards, 8 games cartridges, tape software and utilities, £50 of Books. £220 o.n.o. J. Adams 0274 682227

VIC 20 C2N recorder 16K, switchable rampack, 20 games. All for £200. Tel: 0727 25597. Ask for Neil after 5pm.

VIC20 8/16K Hi-Res Drawing (without Super Expander). 176 × 160 pixels. Draw (m/c), Point (m/c), Circle, Elipse, Spiral, Triangle, Square, Joystick functions. Store Drawings on tape, 1520 printer, and in memory (16K). Tape with Machinecode Routines, Demo Programs, sample Drawings/Maps, plus instructions for £2.50 from. A. Blomberg, 134 Aldebury Road, Maidenhead SL(7HE.

VIC20 +8K Cassette Recorder Motherboard, Joystick programmer's aid cartridge, Sargon Chess, introduction to Basic Parts One and Two, Matrix, Vegas, Jackpot. Many other games and mags, £100 the lot. 01-651 1630.

Wanted CBM 64 and if possible C2N. Will pay about £120. Contact Simon Weaver, Wych Farm, Burton Road, Bridport, Dorset DT6 4PS. Telephone: Bridport 22427.

VIC20 stack storeboard with 16K expansion and Vickit 2, VIC20 games including Defender, Invader Fall, Missile Commander, Frogger, Cosmaids, Asteroids, Gridrunner and Laserzone. Also an introductory to Basic Part 1 with tapes. Also other books for the VIC20. Cost £140 new. New will offer £80 o.n.o. Tel. Scarborough (0723) 372275 for more details

CBM 64 software original game programs. Must be cleared (s. hand) average cost £8.00. Send S.A.E. for list (1=£6, 2=£11, 5=£25) to:- S. Butcher, Clarefoot, Moffat, Dumfriesshire, Scotland.

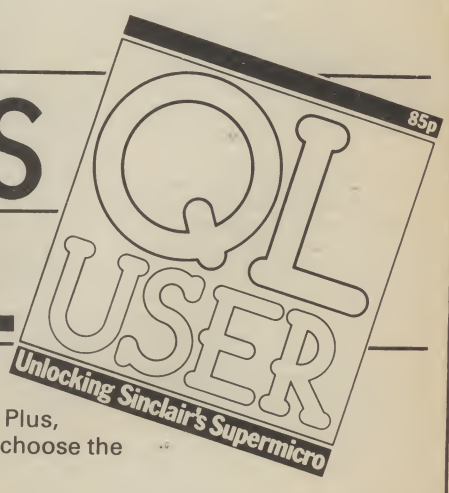
SX64 New, not suitable for requirements. Will sacrifice for £490. Write: 7 Thorn Grove, Hale, Cheshire WA15 9AW or 'phone 061 941 3102.

VIC20 starter pack plus £100 worth software, 7 cartridges, cassettes etc. Intro to Programming 1 and 2, sell for £100 o.n.o. K. Cruickshank, 46 College View, Esh Winning, Durham, DH7 9AB. Tel: 734 888.

All brand new CBM64 computer, £150. Printer MPS802, £290. Disk drive 1541, £170 with software. Tel: 01-886 3268, evenings.

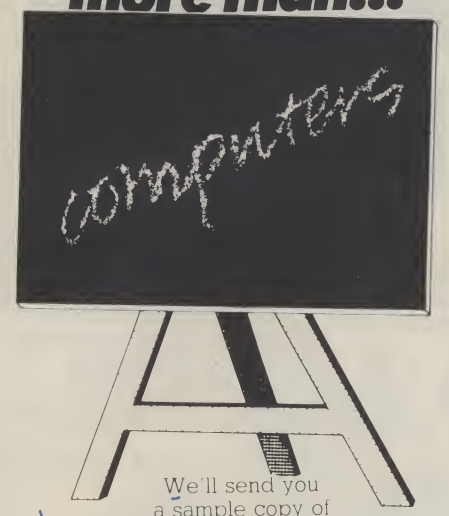
If you are a CBM64 user with disk drive you are invited to join Club64 the international user group. On joining every member may order free of charge 3 disks from our excellent software library. Annual membership . . . £12 UK and Ireland, £15 Mainland Europe and £20 all other countries. Further details from Brendan Conroy Club64, 85 Uppr. Drumcondra Road, Dublin 9, Ireland

AT LAST...
A MAGAZINE GEARED ESPECIALLY FOR THE QL USER.
SUPRISINGLY ITS CALLED QL USER.



For the latest information on every QL hardware and software release, turn to QL USER. Every month we review the latest games, educational and business packages, together with program listings, book reviews and your readers' letters. Plus, of course, hints and tips on how to get the most from your QL. If you're a QL user, choose the magazine written exclusively for your machine — QL USER. Available from all good newsagents.

Nothing will affect you (and your school or college) more than...



We'll send you
a sample copy of
EDUCATIONAL COMPUTING
for just £1.00 write to:
Valerie Day
EDUCATIONAL COMPUTING
Durrant House
8 Herbal Hill
London EC1 5EJ

EDUCATIONAL

Cheques payable to EDUCATIONAL COMPUTING

DON'T VAT THE PRESS

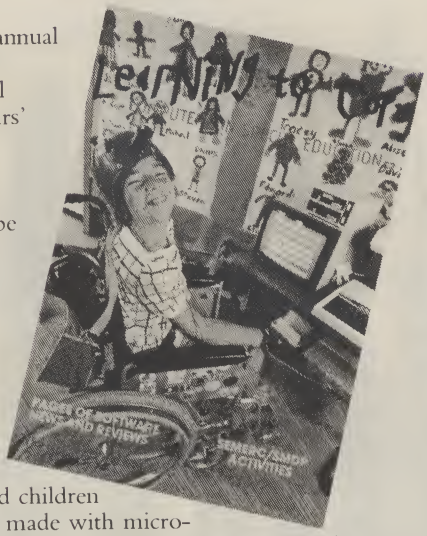
There are strong reasons to believe the Chancellor of the Exchequer is planning to impose VAT on your magazine.
Such a move would turn the clock back 130 years — the last tax on newspapers and journals was repealed in 1855. Since then 'No tax on knowledge' has been a principle agreed by all Governments, even in the darkest days of war.
A free Press is a tax-free Press.
No Government should be given the power to impose financial pressure on a Press it may not like.
Tell your MP to say 'NO' to any tax on reading.

Issued by the Periodical Publishers Association, London

Learning to Cope

Learning To Cope is an annual publication compiled by journalists on Educational Computing with five years' experience in the field of education and high technology. The third issue of Learning To Cope deals with all aspects of computers in special education.

This issue gives information on the latest developments in hardware and special aids designed and adapted for physically and mentally handicapped children and adults. The progress made with micro-electronic devices helps create independence for all who use them.



A large proportion of Learning To Cope is dedicated to software, with a catalogue listing all the specially designed programs for children and adults with specific needs. It also includes a comprehensive software reviews section which examines how programs can be used as teaching and learning aids across a wide range of subjects.

Computer applications are illustrated through case studies covering such topics as computers and the blind and how computers can help to stimulate mentally handicapped children.

Learning To Cope is the only publication which deals in depth with computers in special education. It offers practical advice and guidance as well as pages of useful information and contacts. It is something you cannot afford to miss if you are at all connected with the teaching of children and adults with special educational needs.

Please send me a copy of Learning To Cope — Computers in Special Education.

I enclose a cheque/postal order made payable to Educational Computing for £2 (including P & P). Discounts are available on bulk orders — contact the editorial office on 01-251 6222 ext. 2475.

Name_____

Position_____

Establishment_____

Address_____

_____

Signed_____

Now please post to: Learning To Cope, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.

AN APPOINTMENT NOT TO BE MISSED EVERY MONTH!

1984

Tuesday
280–76 Week 42

16

Sinclair User magazine hits the street on the 16th of every month packed with enough material to keep both you and your Sinclair machine fully occupied until the same time next month.

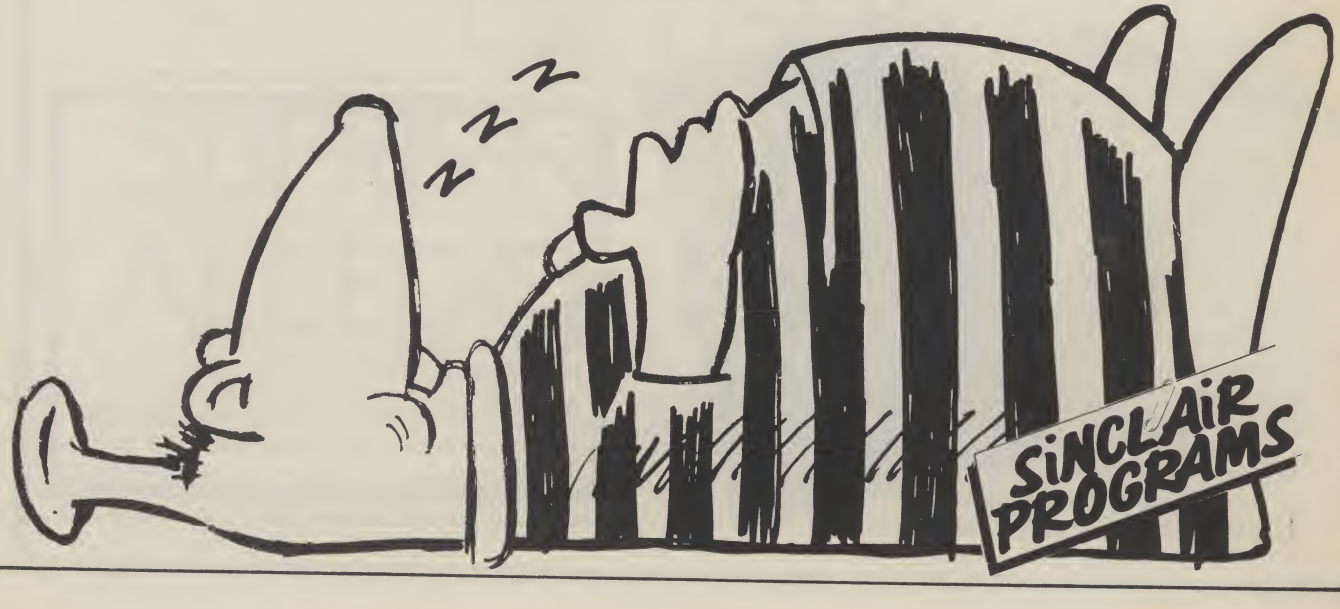
Sinclair User magazine, is devoted entirely to the Sinclair ZX81 and Spectrum. Everything you need to know about the latest peripherals and software releases, as well as letters, book reviews, program listings and competitions. Plus special sections for beginners business and education. We even have a special telephone 'hotline' for those problems that just can't wait.

No wonder **Sinclair User** is the UK's top selling Sinclair magazine.

Available from your newsagents now, only 85p

WAKE-UP!

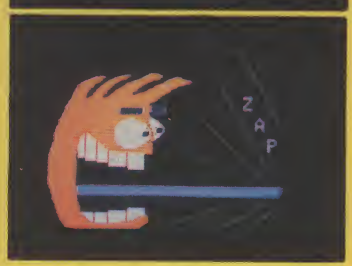
For a FREE Jamboree Bag with Posters, Stickers and Badges.
In the February Issue of Sinclair Programs.
At your Newsagent 26th Jan.



TASK SET!
THE BUG STOPS HERE!
CAD CAM
CAD CAM
WARRIOR
commodore
64
£9.95

KoalaPad™ TouchTablet

JUST PICTURE IT!



JUST PICTURE IT - BEING ABLE TO DRAW YOUR OWN HIGH RESOLUTION GRAPHIC DESIGNS ON YOUR COMPUTER SCREEN WITHOUT HAVING TO WRITE A PROGRAM . . . !

Well, now you can - with the amazing Koala Pad from Audiogenic!

The Koala Pad touch tablet provides the direct link between you and your screen! It plugs into your Commodore 64 and lets you paint directly onto the screen with a selection of brush sizes and a choice of 16 colours and 16 shades from your software pallette.

But that's just the beginning - because every Koala Pad package includes the incredible Koala Painter software which makes it child's play to . . .

- ***Fill outlines with a colour!***
- ***Draw straight lines!***
- ***Make frames!***
- ***Draw circles!***
- ***Plot radians from a point!***
- ***Move objects around!***
- ***Copy shapes!***
- ***Create mirror images!***
- ***Zoom in on an area!***
- ***Swap shapes between two pictures!***
- ***Save your pictures to disk or tape!***

The program is controlled entirely from the tablet by moving a cursor arrow around to the different menu option. An optional Programmers Guide is also available to tell you how to incorporate Koala Pad pictures into your own programs.

Now you don't have to be an experienced programmer to produce real high resolution graphics on your computer - the Koala Pad from Audiogenic makes it as easy as a pencil and paper. Just picture it!

Available with Cassette or Disk software for the commodore 64
From all good computer shops - or direct from Audiogenic - just fill in the coupon!

Please send me ..... (QTY) Koala Pad Disk/Cassette*. I enclose cheque/P.O. for .....
Commodore 64 Disk or Cassette £79.95 †

THE KOALA PAD IS A PRODUCT OF
Koala™ Technologies Corporation

†Price subject to change without notice

*Please charge to my Access/Barclaycard/Trustcard account no:
*Delete/complete as applicable

Signature

Mr/Mrs/Miss

Address

Exclusive distribution in U.K. and Eire by

Audiogenic LTD
P.O. BOX 88, READING, BERKS.

The Complete Commodore Software Guide is the most comprehensive software guide ever published for the Commodore 64 and Vic 20.

Although most of the pages of the Guide refer to 64 software there is plenty of information for Vic owners as well.

The guide is an ideal way of finding out what's available for your computer, how much it costs, and what our panel of experts think of it. Every conceivable type of software is included in the guide. Whether it's business, education, or games you are interested in, the Complete Software Guide is the place to start. There are also a couple of catogories of software that you hadn't even thought of.

Keep your Software Guide in a safe place. You will find it an invaluable reference.

KEY TO SYMBOLS

The symbols in this Software Guide are designed to help you grasp the important information about a piece of software at a glance. The format symbols are self explanitory representing either cassette, cartridge, or disk.

The chequered flag symbol represents fast load devices. Most good software for the Commodore 64 now uses one of these techniques. It is an important consideration when buying software for your 64 as obviously a piece of software that takes an age to load is destined to end up at the back of a drawer.

Star have been awarded to pieces of software that are regarded as classics. You will find a few of these in every section.

Certain sections have their own specialised symbols. The adventure section has five letter symbols. These stand for G = Graphics, T = Text, B = Beginners, I = Intermediate and A = Advanced.

PEOPLE

The Complete Commodore Software Guide was brought to you by

Laurie Sampson	Games
John Ransley	Adventure list
Keith Campbell	Adventure comment
Karl Dallas	Business
Josephine Adams	Education
Seamus St John	Simulations
Stephen Jedowski	Basics
Rhoda Buciak	Deputy Editor
Mike Pattenden	Staff Writer
Lynda Skerry	Design/Production
Silvia Wells	Design
Grant Robertson	Artwork
Eugene Lacey	Editor
C&C Typesetting	Photosetting

CONTENTS

Games ..... **Page 3**

Our games section lists nearly two hundred games for the Vic 20 and 64. Whether it's the maze, the platform, or the shoot 'em up that takes your fancy when it comes to games – you will find plenty of each in our games section. Simulation programs have also been covered like Flight, football, and basketball and even a slightly risque card game simulation called – Strip Poker.

Adventure ..... **Page 15**

There is more to adventure than goblins, elves, and the standard dungeons and dragons scenario. Our adventure section includes information on the very latest games like Rendevous With Rama – an adventure based on the classic Arthur C Clarke novel. Questprobe – featuring Spiderman and the Incredible Hulk, and the old classics like the Hobbit, Adventureland, and the Count.

Business ..... **Page 23**

Get a printer for your 64, then add a disk drive and you have a working business computer. The business software titles available for the 64 have been quietly mushrooming over the last few months. In this excellent round-up Karl Dallas takes you through the four main types of business software – Word Processors, Data Bases, Spread Sheets, and Accounts packages. If you own a small business, or just work in one, you can be using you 64 to make life easier and more productive.

Programming ..... **Page 27**

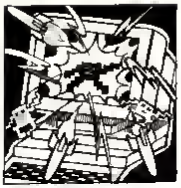
The 64 may not be the easiest computer to programme but it is one of the best. There is now a wealth of programmers software available for the 64 from the simplest of Games Designers to sophisticated languages like Pascal, Forth and Logo. There are also useful tools like Assemblers, and compilers. Your Software Guide has several programs.

Education ..... **Page 30**

The computer is being used increasingly as an education tool. Not just something to learn how to program on but also a machine to help you with your biology 'O' level, learn French, or even improve your driving. The education software industry is now one of the fastest growing parts of the computer business. Dozens of programs are included in this section, and is clear that several more will be launched this year. Find out what is available in our Education section.

Leisuresoft ..... **Page 34**

The new type of software. Software to use around the house. Our Homesoft section includes information on music synthesisers, home accounts packages, games designers, and even a piece of software to tell your horoscope.



GAMES

The 64 is now established as the world's number one games computer

Gone are the days when games were launched first on the Spectrum and then converted to the 64 months later – almost as an after thought

The best software houses are now launching 64 games simultaneously with the Spectrum games or even lauching the 64 game first.

Of the games that have been launched together the 64 versions are head and shoulders above their Sinclair counterparts

Ghostbusters is the best recent example – though you can probably think of dozens of others.

If you don't find your all-time favourite in the Guide write to us and let us know. With so many good games now on the 64 we could fill this booklet three times over. Now there's a thought

ARCADE GAMES

FOR THE 64

ALICE IN VIDEO LAND
Audiagenic
£8.95 (cass)
£12.95 (disk)

Bloomin beautiful – especially the first section with its magic wallpaper! Four screens of gentle arcade action for the young at heart. Not in any way maudlin – well worth having as an example of the programmer's art. The actual game play is worthy enough but it is the interaction of the graphics and music which compel attention

ANT ATTACK
Quicksilva
£8.95

Everyone will be impressed by the "soft-solid" 3D architecture of the city of geometric shapes – quite complicated some of them. Each scene can be viewed from FOUR ANGLES at any time. Run the gauntlet, rescue them, splatting a few insects on the way. Fascinating scenery. Not too exciting game play

APACHE RAID
Omaga
£1.99

This is a joystick-only version of Anirog's INDIAN ATTACK which see. Good value

ARENA 3000
Microdeal
£8.00

Another spin off of ROBOTRON. Small robotic fighters engage you through frame after frame. 1 or 2 players may give battle. Anirog's CYBOTRON has more going for it with it's multicolour – mode displays

ARCHON
Ariolosoft
£11.95 (cass)
£14.95 (disk)

Archon is a brilliant strategy game based on chess. There are pieces with different powers, squares to move into and an opponent to beat. But ordinary chess is easy in comparison.

Once you've decided where to move, the screen switches to an action battlefield where you have to fight for the advantage.

The pieces include phoenixes, golems and wizards. They take on the banshees, goblins and sorceresses. They cast spells, flames and missiles and take on each other's shapes as the fight continues.

It's highly complex and demands great concentration.

You can play the computer or a friend.

ASTRO CHASE
Statesoft
£8.95 (cass)
£10.95 (disk)

An award winning space game that can give you the willies. Magnetic mines are homing in on the Earth but you need to fly to extremities of the galaxy occasionally to stoke up energy supplies so leaving our globe undefended. Alien ships, of varying attributes hound you. These may be rammed, if you have your shield on, or zapped. Cartoon interludes reward the successful player.

BEACH HEAD
U.S. Gold
£9.95 (cass)
£14.95 (disk)

Chillingly realistic war simulation – too accurate for comfort! Ace sound (adjustable). Impressive graphic representations with enough combat to make anyone war weary. 5 phases, ship into harbour picking your way though mines, face strafing runs, engage in a navel artillery duel, storm your tanks through land defences finally blast away the cannons on the mountain. Oozing quality – a standard setter.

BLUE MAX
U.S. Gold
£9.95 (cass)
£14.95 (disk)

World War I, with you controlling a biplane. Take account of wind and engage the enemy in a diagonally scrolling, 3D, shadow-enhanced combat areas. Enemy planes, artillary emplacement, shipping, command posts and vehicles are likely targets. Very colourful and packed with detail!

BONGO
Anirog
£7.95

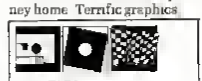
Super Mouse, alias Bongo has stolen into the rajis den and is making full use of the trampolines, slides, transporters and ladders to dodge the evil rodents as he retrieves them of their ill gotten jewels. He also tries to grab bonus letters. 6 screens punctuated by silly interludes. Soft muted music.

BOULDER DASH
Statesoft
£8.95 (cass)
£10.95 (disk)

An American smash. Appreciate the effects of gravity as you remove earth and shift boulders to get at the diamonds – you may be crushed. Dazzling butterflies and 80 screens of 4 way scrolling with interesting textured designs. Many problems to solve but all with a common theme – collecting and CREATING diamonds. Jam-packed with special features.

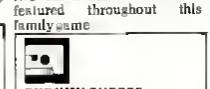
BOZO'S NIGHT OUT
Toskant
£6.90 (cass)
£9.99 (disk)

A fun game revolving round a progressively wobbler inebriate and featuring typical pub music. 3D street scenes with coppers, punks, grans and revers to avoid; paving stones keep disappearing to provide traps for the unwary. Nightmare Park has a population of zany monsters – hardly a shortcut for Bozo in his journey home. Terrific graphics.



BRISTLES
Statesoft
£8.95 (cass)
£10.95 (disk)

There are 6 houses in need of redecorating in this complicated game. Paint a room by moving through it, being on the alert for the many hazards. NOT CRAZY PAINTER, the presentation is entirely distinctive. The 'Nutcracker Suite' is featured throughout this family game.



BURNIN' RUBBER
Audiogenic
£6.95

A linear stock car race with water jumps aplenty Knock the other racers off the track to score points funnel into the narrow sections and pick up speed to leap over sheets of water Virtually the same as BUMPIN' BUGGIES

CATASTROPHES
Mirror Soft
£6 95

A multi-faceted DISASTER game where the under 5's are encouraged to build a hotel on an offshore island utilising helicopters. Good effects complement an intelligent game Weather natural disasters and triumph!

CAVE FIGHTER
Bubble Bus
£9 90

Award yourself 88 lives and ledge-bop through 31 alien infested caves Climb ropes shoot aliens and ease through razor sharp tight squeezes A jumpometer is essential equipment it ssve you smashing your head

CAVERNS OF KHAFKA
U.S. Gold
£9 95 (case)
£14.95 (disk)

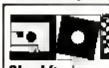
An atmospheric 4 way scrolling arcade/adventure with a great creaky lift. Make light of lava pits tumbling boulders creepy crawlies and awkward jagged rocks as you search for five magic seals which will gain you access to the Egyptian tomb where you come face to face with the sphinx

CHARTBUSTER
Alligata
£9 95 (case)
£13.95 (disk)

Five good games on one tape Blagger – platform type Eagle Empire – blast the birds then the egg planet, Killer Watt – pick your way through caves and pop light bulbs! Panic Planet – dig holes to trap meanies Bushlaster – this is CENTIPEDE Excellent value

CHOC-A-BLOC-CHARLIE
Lothlorien
£6 95

A very tricky block-pushing game Collate four magic purple blocks to form a doorway to the next screen To do so unmolested necessitates penning-in the guardians and keeping out of range of the pat rolling alien The second screen is a gauntlet of whirling wheels Very tough



Choplifter!
Anolasoft
£9.95 (cass)
£12 95 (disk)

East of Patagonia and south of Kudistan lies the Bungelling Empire – the fictional setting for several Ariolasoft action programs

The imperialistic Bungelings have kidnapped all 64 delegates to the U N Conference on Peace and Child Rearing

It s your job to get them out– without causing death and destruction

CHUCKIE EGG
A & F Software
£7 90

A 256 level platform caper with dreaded lifts Collect the eggs and corn but avoid the ducklings Big Mums freaks loose on level nine making life very hard Addictive in the extreme, but how I wish you could skip the first few screens

COSMIC COMMANOO
Anirog
£7 95

Set in a futuristic shooting gallery with a perspective effect There are three zones with five levels of play Ideally use a Stack Light Rifle, failing that a joystick will do

CRAZY BALLOON
Software Projects
£7 95

Guide wobbly hot-air balloon through 26 circuits eschewing all contact with sharp edges and roving mega – pins There are giant magnets to pull back the unwary and many a devilish tight squeeze Average

CRAZY KONG
Supersoft
£8 95

Four screens (who can get past screen 3?) of barrel smashing/ hopping fire avoiding lift jumping ladder climbing tribulations This version is very brightly coloured

CUTHBERT ENTERS THE TOMBS OF DOOM
Microdeal
£8 95

An arcade/adventure with over 200 chambers to scrabble through Keep your protective oil lamps topped up – they freeze the weirdos – pick up keys to unlock the next chamber with its fresh supply of oxygen and grab treasure Puzzles to work out and dead eye shooting a must

CUTHBERT IN SPACE
Microdeal
£8.00

Fly your gaudy "dodgem car" to grab fuel pods from platforms and refuel your mother ship there then follows a "grab and goodies" screen Blast or dodge the whirling droids in both cases Special panic phases thrown in

CYBOTRON
Anirog
£7 95

100 screens with robot forms hounding humans, requiring two joysticks – one to move – the other to fire, although both functions CAN be combined in one stick Imaginative large droid forms each with different functions and very colourful screen displays. Extremely tough and demanding – it really does need a team effort.

David's Midnight Magic
Anirosoft
£8.95 (case)
£12 95 (disk)

An outstanding electronic pinball program for 1-4 players

You've got dual flipper controls bumper action rollovers multiple ball play and – if you get too carried away – 'tilt !

All the sounds of a classic pinball machine with some very special, special effects and outstanding graphics

DECATHLON
Activision
£9 85

Activision's Decathlon is what the purist sports simulation fans are choosing for their micro Graphically the game is less similar to the arcade game Track and Field than Ocean's Decathlon but in the playability stakes Activision's program matches the arcade version stride for stride

Like most sports games you will get through a couple of joysticks before you have mastered the game It is not uncommon for two or three joysticks to break in a fortnight because of the punishing treatment they receive

Our choice for the best athletics simulation for the Commodore 64

DEFENDER
Atari Soft
£14 99

The no-waiting-for-it-to-load version Competent in every way but I prefer the graphics in GUARDIAN Battle with landers mutants baiters, pods swarmers and bombayers putting aside some time to rescue the humans

DERBY DAY
CRL
£7 95

An interesting simulation of a day at the races spoilt by using the lurgy INPUT statement which CAN give rise to the dreaded REDO FROM

START That spart up to four players can test their skill at gamhling by seeing who can loose the least Place your bets

DICKY'S DIAMONDS
Ramik
£9.99

A maze game tsking place on a spider's web You're an owl trying to retrieve a hoard of diamonds displayed one at a time in the centre of the silken net Tricky stuff

DINKY DDD
Software Projects
£7 95

Pick your way across s roomful of nightmsre characters all aolng their own sweet wsy Grsh hold of your glass of milk whereupon most of the nasties turn into cherries Make your way to the exit munching as you go

ENCOUNTER
Novagen
£9.95

A pllots-eye view of close encounters in psychedelic space cemeteries Blast swsy at saucers homing missiles and tlcking time-bomh craft Good 3D displays, especially so when plesma bolts are stresming towards you Chase through or hide behind the obelisks thsn survive a meteor storm to arrive at the next level

FALCON PATROL
Virgin
£9.95

Master the "Harrier" jump-jet flying technique then use your radar to hunt and kill raiding aircraft The initial incursions are hy groups of three – but soon you are facing flights of five fighter hombers Ammo and fuel need replenishing via the landing pads with the ever present threat of enemy raids Scrolling screen, perspective illustrations and effective kapows

FALCON PATROL II
Virgin
£7.99

This time round the VTOL has to engage three types of helicopters as well as flsck batteries and radar jammers Re-fueling is the most vulnerable time hut nothing is essy Great desert scenery scrolling by explicit instructions in the intro – so no excuses! Better than the original

FELIX IN THE FACTORY
Micro Power
£6.95 (cass)
£9.95 (disk)

Top up the generator with oil Leap over the parcels on the conveyor belt, scale the ladders dodge or impale the gremlins and for Pete's sake watch out for the rst Unnerving sonics create a feeling of panic Wouldn't go out of my way to buy it

FLIGHTER PILOT
Digital Intergration
£9.99

Digital Intergration stormed their way into the hig league of software houses with two big hlt games in Spring 84 – Night Gunner and Fighter Pilot

Of the two games, Fighter Pilot was meramally more successful It's a flight simulation with a strong flavour of World War II

As well sakeeping an eye on all the normal controls the player has to deal with bandits scresming in from above and below

FIRE DUEST
The Edge
£9.95

7 screens of co-related, intertwined conundrums focusing on UGH's efforts to acquire FIRE The curious may admire all the prehistoric scenes courtesy of the demo mode while everyone will appreciate the discrete music Familiar arcade actions brought together rather well in a classy offering

FLIGHT PATH 747
Anirog
£7.95

This flight simulation puts you in the driving seat of a 747 which you have to pilot over a mountain range and land safely at your final destinatinn

The airliner is difficult to control at first, You have to keep one hand on the joystick and the other on the keyhoard to control the speed carriage and flaps etc But with a bit of practise and a cool head you'll soon be flying

The taps comes with a fairly lenathy instructinn booklet which could have hesn better written

747 is a reasonable simulation which has the sdded honus of hsving some of the hest music I've heard on the 64

FOOTBALL MANAGER
Addictive Games
£7.95

Addictive Games is probably the only software compsny in Britem that has been able to survive on the success of only one game during the last 18 months This remerkable game is Football Manager

It differs from most football simulstions by plscing you in the shoes of the team s manager instead of one of the players You have to make sure you buy the right players without spending too much money And if your tesm happens to get relegated the directors will give you your merching orders

A good game in its dsy but s little dated now

FORBIDDEN FOREST
Audiogenic
£9.95 (cass)
£12.95 (disk)

Shows what CAN be done with the 64 Help the srcher overcome mego creepy – crawly denizens of the tangle wood: fight the spooks as the darkness deepens: despatch the snake as the moon rises: face the final test while the lightning flashes Moody sound superb lighting effects and 3D scrolling: an experience more thsn a game

FORT APOCALYPSE
U S Gold
£9.95 (cass)
£14.95 (disk)

Negotiate your chopper through scrolling cave scenery with the aid of radar display. Rescue eight people from the first level. Travel through laser chambers and rooms with sliding blocks. pick up fuel then descend to the next level with another eight prisoners Can you then blast away the FORT?

FRANTIC FREDDIE
Audiogenic
£8.95 (cass)
£12.95 (disk)

This ladder – mase game offers 16 different levels to ensure that treasure collecting doesn't become too essy. Ten separate tunes enhance a challenging runaround which demands s strategic approach – learn the movements of individual chasers

FRED
Quicksilva
£7.95

Explore the catacombes beneath an Egyptian burial chamber. Scroll the screen in four directions as you climb ropes; dodge acid drips; pick up honus treasures; shoot mummies, ghosts and skeletons; pick up more bullets and search for a homb to blast open the exit

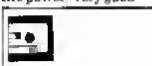
FRENZY
Micro Power
£9.95 (cass)
£9.95 (disk)

Basically this is STIX with highhrow music Only two colours red and green are used but the 'energy bundles" and pursuing particles increase in number with the level of play The rules sre the same as the Super Soft game except that 95% of the screen has to be claimed OR you can frazzle the STICK by trapping him in a zone flooding with

colour Very slick presentation

GALAXY
Anirog
£7 95 (csss)
£9 95 (disk)

GALAXIONS, with the ability to decimate the battle fleets AS they are forming 100 screens with bonus frames sprinkled about The molber ships mey attempt to "beam you up" – bowever if your next laser blaster destroys the relevant mother ship yon gain double fire power Very good



GLUG GLUG
CRL
£7 95

Nothing wrong with the idea but the implementation is terrible, for example when your diver unleashes harpoons they reappear on the opposite side of the screen For those interested you are required to pick up treasures from the sea bed and deal with the voracious squarium escapees The sound is dismal

GRABBER
Micradeal
£9 99

Ten screens of double – maze action You may switch from one t other as you attempt to colate the tokens in the central reservation. Bonus screens – alien free – occur once in a while. Good game – good music

GRIO TRAP
Sumlosk
£8 95

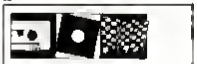
Plan your speedy trek across the trapdoors with care as you race to defuse the bombs you need to bave a clear dash to the next time bomb Bovver boots to elude and bonus flags to pick up A fast action tactical game

GRIORUNNER
Llamasoft
£5 00

Orange grid cyan droid-pedes and yellow pods incubating to release white bombs a colourful arena for your green interceptor to operate In You can bear the invaders squeak amidst the general cacophony 20 zones for the purist zapper to fly but deadly craft Utterly habit forming – NEVER to be outdated

GUARDIAN
Alligata
£7 95

A full festured implementation of the arcade mega hit – defender landers mutents baltars, swarmers and mini layers they are all here ready to take you on. If you only buy one space game it must be DEFENDER. This version will see you through – hard to fault it



GYROPOD
Taskset
£9 90 (cass)
£9 99 (disk)

Two screens of space combat Zip your gun turret around the rim of your mother ship and blast the UFOs nip down to the alien's planet and filch supplies stunning meanies with a hand gun On your return complete the annihilation process. thus also destroying their planet then pass on to 3 more civilisations each with different space ships, to continue the mayhem

HANDICAP GOLF
C R L
£7 95

The best most user friendly golf simulation i have seen 80K of code to take care of all the variables such as wind speed and direction choice of clubs angle of shot and the 19th hole You walk across the course, taking note of the bunkers and other obstacles

HARD HAT MACK
Ariolasoft
£9 95 (asss)
£12 95 (disk)

Life is tough on the construction site All you've got to do is complete the building ... but there are one or two obstacles, like the neighbourhood punks building regulations, and falling bodies

The punks don't like what you're doing on their street, and they'll stop you any way that they can The building inspector is looking for any excuse to close down the site. And don't forget – falling bodies can cause a lot of damage!

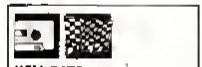
There are six levels – and skill is what you'll need plenty of!

HAVOC
Dynavision
£9 99

Good 3D graphics with diagonal scrolling Squares through gaps in towering variously hued walls as you direct an interceptor in seach of cruise missiles Magnetic mines and smart bombs make a difficult game virtually impossible as the shock waves from explosions hurl you hither and thither Zaxxim is far better

HEATHROW AIR TRAFFIC CONTROL
Hewson Consultants
£7 95

As the title suggests this is a "sensible" program Assimulation of the jargon to a must in order to be 'on top' of the 3-part screen display There is a radar screen, a stack display which tabulates relevant info for the aircraft being held around the four beacons, and a panel for sending tokenised radio messages 8 levels includes a demo mode Exhaustively done



HELL GATE
Llamasoft
£9 00

For all those with excess nervous energy Control a battery of four guns moving around a box Pummel the warping in aliens with curtains of laser bolts but try to avoid the goats Study the behaviour of alien forms beware of the pods and practice, practice, practice Automatic smart bombs!

HEXPERT
Anirog
£7 95 (cass)
£9 95 (disk)

Hop from ledge to ledge eventually changing the pyramid's colour completely dodging a colly snake and two bouncy balls with a chaple in specs signing on later

HIGHNOON
Ocean
£9 95

A full perspectlve shoot-out western style which allows you to hide in the bank or saloon Prevent the bandits from robbing the bank and abducting the women Beware of outlaws with dynamite and show respect for those on horseback The climax is a showdown at the Hole in the Wall

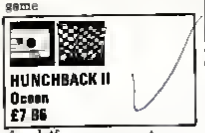
HOOPER
Calisto
£7 95

Crazy Painter in disguise Run away from the chasers as you visit every nook and cranny of a grid. Peculiar music on this version but overall an enjoyable game.

HOUSE OF USHER
Anirog
£7 95 (cass)
£9 95 (disk)

Before you get to the treasure chamber and the mystery rooms there's the small matter of eight rooms to pass through Each has its' own set of nigh impossible hurdles to surmount The rooms may be selected at will enabling you to keep plugging away until you get it right Only for experts in need of an outlet The pounding pistons cannon balls monsters and company are waiting

HOVER BOVVER
Llamasoft
£7 50 (sses)
£9 50 (disk)

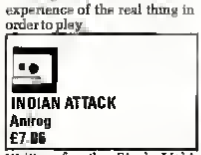


HUNCHBACK II
Ocean
£7 86

A platform game given a distinctive treatment Accurate joystick control endows Quasimodo with athletic prowess Work through five stages picking up small bells to earn the right to make the big'uns peal Ropes, hooks and moving platforms help you get about but bats, axes fire balls, bouncing cannon balls and clockwork machinery are a definite hinderance

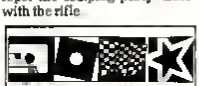
HUSTLER
Bubble Bus
£6 80

Six variations of pool to provide endless entertainment for the non-zapper, rag time music too! One of my favourite programs featuring all the problems and laws of physics associated with the actual game. You don't need experience of the real thing in order to play



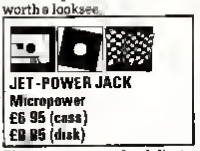
INDIAN ATTACK
Anirog
£7 86

Written for the Stack Light Rifle with allowance for a joystick The setting is a log cabin with six palefaces trapped inside Shoot the redskins off of their horses as they race past then prepare to repel the scalping party Best with the rifle



JAMMIN'
Taskset
£6 80 (cass)
£9 99 (disk)

Exemplary beat music in a very unusual game that has you collecting musical instruments from 20 "Ludo" – style boards each equipped with moving pavements. Unusual and very distinctive well worth a looksee.



JET-POWER JACK
Micropower
£6 95 (cass)
£8 85 (disk)

Five screens of delicate manoeuvering demanded as you negotiate space garages populated by restless meanies Work your way from one side to the other, then back again, having picked up a fuel pod Virtually everything is deadly to the touch

JET SET WILLY
Software Projects
£7 95

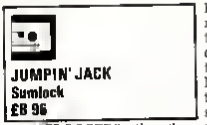
There is a reasonably painless protection code with this program which was of course, very popular on the Spectrum Not too keen on the graphics but the game has plenty to offer to nimble joystick fingers Willy must collect all the debris from a binge before he retires this entails searching ALL of his vast mansion and surmounting many hurdles

JINN GENIE
Micromega
£8 95

An Arabian nights saga with a shoot up on the first screen followed by 3 frames of maze action, where ultimately you rescue a captive wise man and imprison the evil genie in a jar O K on the first few outings but hardly a winner

JOHNNY REB
Lothlorien
£6 95

A WAR GAME focusing on the American Civil War – one small action to be precise Gain the upper hand in this tussle for a river crossing Position your cavalry infantry and artillery then commence to slug it out The actual battlefield conditions vary with each session Develop skill in manoevering your forces



JUMPIN' JACK
Sumlock
£8 96

THE "FROGGER" – the other versions are obsolete Full perspective graphics dripping with colour and optional music As many characters as you could wish to meet/avoid down by the river bank

KAKTUS
Supersoft
£8 96

Protect your cactus home from the ravages of wasps Spray the shot about with gusto and be ready to avoid the bouncing buzzard-eggs There is a sly mole who will attempt to block your burrow Not bad

KNIGHTS OF THE DESERT
U S Gold
£14 96

Here's your chance to see how you shape up as a General in a real battle! The pages of history record the triumphs and failures as Eisenhower, Montgomery, Rommel and Von Rundstedt battled in Europe and North Africa

But with a clear thinking strategist like yourself in command the historians might have a different story to write

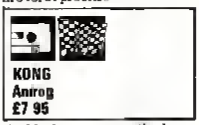
U S Gold have released four war games which can allow you to re-write history Knights of the Desert pitched the British forces of Montgomery against the might of Rommel and his Panzer Division in the legendary North African campaign of 1941

Battle for Normandy commences on D-Dey June 6th 1944 and re-enacts the Allied Forces attempt to smash Hitler's Atlantic Wall

Tigers in the Snow reconstructs the famous Battle of the Bulge as in 1944 the Panzer Divisions of Von Rundstedt try one last gamble in a desperate bid to halt Eisenhower's advancing Allied lines

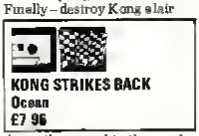
KOKOTONI WILF
Elite
£6 95

Feather-powered flight is never easy, the obstacles in this program make it a lot harder. Collect all the tokens in a time zone, scrolling above and below ground to advance to the next age. Exasperating stuff for the non-specialist unless you are prepared to put in a lot of practice



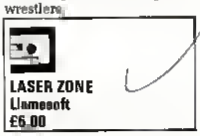
KONG
Anirog
£7 95

A black screen with large characters giving less room to move. Absolute precision is essential with this version Screen one – jump the barrels Screen two – keep out of the oven and avoid the pies. Three – evade springs and use the lift Finally – destroy Kong's lair



KONG STRIKES BACK
Ocean
£7 96

A worthy sequel to the much-played favourite. This time KONG has moved to a fairground so as you attempt a rescue expect to face cars hurtling down the Roller Coaster Springs bouncing balls, hobby horses etc are queuing up to join in Colourful musical and good fun for gorilla wrestlers



LASER ZONE
Llamasoft
£6.00

As the VIC version but with better defined multicolour graphics and a large pool of meanies to draw upon. Greater detail for the intruding pods too This game allows for 4 variations of play – the combined two player team effort is great. Solo zappers used to be ace otherwise frustration will creep in

LAZY JONES
Terminal
£7 86

Help Jones dodge his hotel duties and sneak off into a hidy-hoe where he can play video games There are micros in most of the 18 rooms plugged into Egg Chuck & Co

you get to play them all if you can avoid the management. Super stuff way out on it's own, brimming over with arcade action. Clever graphics and trendsetting muzak. Brill.

LOCO
Alligata
£7.95 (cass)
£11.95 (disk)

Study the radar map of the railway tracks, switch lines to pick up fuel, rate the imminent arrival of bomb-dropping planes, airships and nullify them with clouds of smoke. Deal with explosive trucks with a gash of red hot steam. Pictorially excellent, slinky scrolling and terrific action. Superb game play through five chuggins levels.

LODGE RUNNER
Ariolasoft
£9.95 (cass)
£12.95 (disk)

You are a highly trained galactic commando deep in enemy Bungeling territory.

The Bungelings have stolen a fortune in gold and it's your job to recover the ingots from their underground store.

It's fast and furious with endless variations. An you can desing your own screens (disk version only) – no programming knowledge is needed.

MAGIC MICRO MISSION
Quicksilva
£7.95

Based on a T.V. show of the same name, hardly enjoyable to anybody except committed fans of the same. Screen one has you shooting alien craft – all must be dealt with before they reach the bottom of the picture. Screen two is a maze (inside a micro) where you have to collect white chips while avoiding black chips & registers.

MANIC MINER
Software Projects
£7.95

THE classic platform game with all the stuff that mega chellenges are made of. Jump with aplomb, trip over the pansies, outsmart the robots . . . ever onwards through the mine, collecting the keys to reach the next shaft. Very playable.

MATRIX
Llamasoft
£6.00

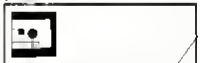
Change the red grid to blue and we have a faithful translation of the VIC game. Clear the grid of space pedes and friends to advance to a screen and try to fathom out the mystery bonuses.

MAZIACS
DK'Tronics
£6.95

Great maze game. Fight the giant crabs, find food, grab swords and ask chained prisoners the way to the treasure. You only see a small section of the maze at any time (more if you press V) so this is more of a thinking game. Three levels of play to really test your tactical ability.

MEGAWARZ
Paramount
£7.50

Classy music throughout this journey through the solar system. You only get to progress after despatching the fearsome fighting fleet blocking your path. For a bonus interlude pick up the astronauts before they mutate to cosmic jellyfish. Almost 'delicate' action, not a raw blast.



METAGALACTIC LLAMAS BATTLE AT THE EDGE OF TIME
Llamasoft
£6.00

As the chosen one, you must squelch the dancing cosmic spiders and/or bust their threads with accurate spitting, using ricochets off the screen edges or the movable force field to reach those awkward places. Things get really tricky should any reach ground level and become crawling green weevils. Zingy stuff.

MICRO MOUSE GOES DE-BUGGING
Lothlorien
£9.95

It had to happen – see off the bugs, collect the missing (flashing) letters for the program and watch it RUN. The programs, within the program, get progressively more complex as does the arcade action. Certainly unusual.

MR. DIG
Microdeal
£9.00

As you tunnel through the earth to reach the cherry orchards, bop the monsters with your bouncy ball or hew out a shaft so that falling apples may crush them. Beware of powerful mutants – why not grab the bonus object to freeze them. A quality fun-game.

MR. ROBOT
Beyond
£8.95 (cass)
£11.95 (disk)

A-LEVEL' game with plenty of zany apparatus to amuse, puzzle and frustrate all and sundry. 22 obstacle courses with the power pills packed away here, there and everywhere. Rows of fize bombs, highly elasticated trampolines, jump further magnets and aliens cunningly assembled. The FACTORY screen is a do-it-yourself construction feature allowing the player to customise his own hurdle teasers.

MR. SPEEDY
Omega
£1.99

This game relies on speed for its possible appeal. Race over the stepping stones, avoiding the random traps to change their colour from yellow to blue, the sequence necessary varies with each screen. From level four jelly blobs float across forcing you to re-route. I imagine the tempo continually quickens. Note the price.

MUTANT MONTY
Artic
£6.95

A familiar format: guide Monty through 40 rooms/mazes each with a complement of deadly moving sprites ranging from blinking eyes to enraged toilets. One room is said to reflect the internal architecture of the CBM 64. The ultimate objective is the rescue of the fair damsel but in the meantime you have to grab all the gold in each sector to prize open the exit. A perky tune and interesting theme-room layouts. This game joins the queue.

MURDER ON THE ZINDERNEUF Ariolasoft
£11.95 (cass)
£14.95 (disk)

Agatha Christie-type murders on board a Zeppelin.

Someone's going to get away with murder unless you solve the mystery before touch-down.

You can be any one of eight famous detectives trying to find out who killed one of the 16 passengers on board.

You can ask questions hunt for clues and make accusations. But you've only 36 minutes!

M.U.L.E
Ariolasoft
£11.945 (cass)
£14.95 (disk)

Up to four players have to establish a community on a distant planet with the help of a mule-like machine. M.U.L.E = Multiple Use Labour Element.

Economics, climate and environment are all factors you have to juggle as you struggle to get your settlement going.

NEOCLYPSE
PSS
£7.95

Four seperate zones of gaudy architecture to scroll through, picking out your enemies in

their radar posts and zapping them from the safety of a space ship. Nint for long, aliens zoom in to offer combat. All four planets must be pacified. Super smooth scrolling.

ORPHEUS IN THE UNDERWORLD
Sterling
£6.95

PITFALL decorated by hieroglyphics and featuring the CAN-CAN. 120 screens of rolling boulders, floor traps, poisonous plants, vows flying birds and fireballs below ground. Pick up the treasure and gain confidence in swinging on a rope and scuttling past vanishing ponds.

ONE ON ONE
Ariolasoft
£9.95 (cass)
£12.95 (disk)

Sports simulations have always proved the most difficult games to make playable on a computer. Hardly any with the possible exception of International Soccer, have managed to capture the atmosphere and tension of a real sporting event not to mention the fine control and manoeuvrability that is vital to this sort of game.

One on One – an American Basketball game, qualifies as one of that rare species – the convincing sports simulation.

It was designed and written with the help of Larry Bird and Julius Erving, two of the USA's best Basketball players. And it shows.

Each of the player's characters has to be moulded on either Bird or Erving. So depending on which of the two you choose, your shooting and defending abilities will be different.

NURSERY NIGHTMARE
Cable Software
£7.50

Try not to let the baby crash to the ground as you set off in search of milk – side step the moving nursery paraphernalia which counterflows and whizzes in the higher levels. Oh yes, the milk starts to dodge about too, meanwhile baby is tumbling floorwards.

OUTBACK 64
Paramount
£7.50

Protect the baby kangaroos from the decending swagmen. Zip up and down a pulley system popping the would-be abductors balloons watching out for their boomerangs. Screen two has you ripping parachutes while in the last frame the swagmen are floating skywards aiming to push a rock on your head. Good music.

OPERATION WHIRLWIND
Ariolasoft
£11.95 (cass)
£14.95 (disk)

You're commander of a World War Two armoured task force with the objective of securing a city 15 Km and two rivers away.

The enemy – and the terrain – are very hostile. You need a skilful combination of action and strategy to secure your goal.

With four skill levels an individual game can last up to three hours.

PARAS
Lothlorien
£6.95

In this WAR GAME you direct a small group of commandos (15) with the objective of blowing up a bridge. The weapons your men carry are selected with due consideration for the twin tasks in hand. Two games – long and short versions with ten levels of play. Plenty to consider.

PC FUZZ
Anirog
£7.95

A 3D street-scene game in which the copper on the unicycle nabs the villains and recovers the loot employing his truncheon as a boomerang. Our hero has to avoid drunks on cycles, punks on pogo-sticks and homing bombs. Scrolling screen of course.

PENGON
Microdeal
£9.00

This time round red scallions are the crushables in a PENGY lookalike. You get a sea shanty for an accompanyment in this average game. You can buy better.

PESKY PAINTER
Super Soft
£6.95

The best Crazy Painter? Fox the guards as you travel round the grid cleaning away the grime from the squares. When all the squares have changed colour partake of the bonus phase before you change into a paint brush. This time round each square delineated has to buff up to a previously painted one – tricky! Very good music.

PETCH
Anirog
£6.95 (cass)
£9.95 (disk)

Currently the best "take home" version of Pengy. Popcorn accompanies your attempts at crushing the chilly-chasers with ice blocks, destroy their eggs too. Make use of the electrified perimeter fence to stop them and find time to line up 3 diamonds for the all important bonus. Pleasing graphics.

PILOT 64
Abbex
£7.50

Pilot 64 comes with some impressive credentials. It was written by a pilot and based on a real aircraft – the Leander 454 – which you must fly and land at a simulated Norwich airport.

You use the map displayed at the start of each game to fly a circuit around Norwich, negotiating various hazards – including a military air zone.

The instrumentation is the most impressive thing about the game – which has apparently been praised by pilots for its accuracy.

Overall Pilot 64 isn't really in the same class as Solo Flight or Flight 747 when it comes to playability. Pilots may like it but I'm afraid for this reviewer Pilot 64 will remain grounded.

PLUMB CRAZY
Terminal
£7.95

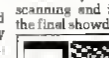
Plumb-in a pressure-relieving pipline to a bulging boiler, using various elbow joints and straight lengths. Plan your route through 99 boulder-strewn courses using the limited supply of dynamite sparingly. There is a time limit of course and a refugee ghost from Munch Man to plague you.

POSTER PASTER
Tasksat
£6.90 (case)
£9.95 (disk)

Paste up 12 advertising boardings and dest with interlopoling unlikely crestures. You have to select the right section of the ad and fix it in the correct position else it won't stick. Well drawn street scenes – orginal idea – compulsive play.

PSI WARRIOR
Geyoed
£9.95

A sci-fi fantasy of the highest order. Superb perspective graphics, challenged only by the degree of control you are able to excerise over the gladiator on his hover skate board. His task is to venture through the corridors and levels of a silo inhabited by nebulous beings these he oets in order to absorb their energy. Gaining in power and aplomb he descends to the lair of the SOURCE making use of his newly earned powers of levitattoo, teleportation, psychic scanning and invisibility, for the final showdown.



QUO VADIS
The Edge
£9.95

Blimey 1200 odd screens of arcade adventure. Acres to explore guardians to destroy

with your light-sword, deft rope climbing demanded here and there and lava pits to jump daintily over. You will admire the decor but will be most interested in finding replenishments for sapped energy. Nimble stepping and dogged determination may eventually enable you to discover the needle in the haystack and liberate humanity. Admirable for hooked devotees of the genre.

QUINX
Supersoft
£6.95

You are standing on a sheet of A4 paper, probably in a nightmare. On either side of the sheet is a bottle of TIPPEX and QUINX Ink worms crawl across the sheet till they reach the other side when they start chomping away like mad, finally exploding. You may stomp on them and erase the "go faster trails" of ink with your correcting fluid. Whenever the ink supply runs out up pops the next screen with different colours of course.

RAID ON BUNGELING BAY
Ariolasoft
£9.95 (cass)
£12.95 (disk)

The Bungelings are at it again! This time they've built the ultimate Doomsday Machine – it's programmed to crush civilisation and only you can stop it.

You have to destroy six factories. Your helicarft is fast – but vulnerable. The Bungelings are waiting with weapons you've never seen before.

'Raid On Bungeling Bay' features realistic helicraft control a 306° scrolling screen and a parade for the victor with newspaper account of the raid.

REVENGE OF THE MUTANT CAMELS
Llamasoft
£7.50 (cass)
£9.50 (disk)

Essential arcade education. Spit and jump your way through 42 waves of zany creatures. After lolloping a set distance through the desert, the next odd hods roll in, plus your shield strength is upped. Frantic firing, jumping and ducking is compulsory with due respect paid to varying attack formations.

REALM OF IMPOSSIBILITY
Ariolasoft
£9.95 (cass)
£12.95 (disk)

You'll need a friend to get you to the deepest part of the darkest dungeon in this mind-gripping program.

All sorts of nasties are out to get you – snakes, slant spiders, zombies and packs of ugly vicious little round things!

There are 13 (lucky for-some) dungeons, 129 different rooms, four skill levels and a two-player mode.

ROCKET ROGER
Alligata
£7.95 (cass)
£11.95 (disk)

This convincing jet-pack simulation gives you the shitty to explore 30 zones and work out how to evade the guards to collect 99 crystals. Plenty of hurdles to surmount, precision flyers only need apply. The four way scrolling window compels you to see what is just around the corner.

ROOMLORD
PARAMOUNT
£8.95

Exemplary musical soundtrack in this arcade adventure. Retrieve your rightful inheritance from 16 rooms jam-packed with imaginative nasty sprites and silly-Billy traps. Stealth and bursts of speed may see you through.

SAM'S JAM
Abrasco
£8.95

Plenty of good music, full stop. The actual game entirely thwarted my attempts to get past screen one – it may be possible but goodness knows how. In theory you are patrolling a jam factory keeping down the rodents and eating jam on the side. Can anyone do it?

SCRAMBLE
Amrog
£7.95

A nifty version of the familiar favourite with six colour-coded sectors. Rocky terrain, UFO cave, meteor storm, rocket city, maze and power base. Dead smooth easy glide scrolling, pulsating sonics.

SCARPER
Lothlorien
£8.95

A very large tongue in a mega cheek shoot 'em up. Escort ten unfortunate games writers across a zany surface of a hostile planet. Use your interceptor to shield them from the weirdest sprites the 64 can muster. Will they reach the rescue ship? Who cares – the action is continuous, inviting many a journey over the scrolling landscape.

SEE-SAW
Quicksilva
£7.95

From a very convincing demon's castle, the monster in chief is hurling very colourful masonry in your direction. Dodge about on your see-saw, shuffle the blocks and harness the energy in the falling obunks to return the salvo. The green guardians will catch anything – so await a suitable gap in their ranks till you soar over the castle yourself on a rescue mission. Enjoyable because the laws of physics are manipulated by the player – good sound too.

SHEEP IN SPACE
Llamasoft
£7.50 (cass)
£9.50 (disk)

SHEEP MAY SAFELY CRAZE – if they get the time, nevertheless munch you must, to replace vital shields and keep body and soul together. Bop and blast freaky aliens as you fly and work over your planet's scrolling surface; prevent CHARGE CARRIERS from transporting energy to the fiendish PLANET BUSTER. 48 stages laced with special effects.

SHOW JUMPING
C.R.L.
£7.95

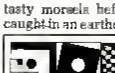
If you INSIST on imitating Horse of the Year then buy it otherwise steer clear. I found it impossible to judge where I was in relation to the fences – practice would improve this situation BUT what is needed is DIAGONAL SCROLLING.

SKRAMBLE
Mushroom
£8.50

Currently my favourite variant of the genre with a spitting-frog zone apart from the standard sectors. Extra ground targets and sumptuous colour displays do not detract from the all important task 'Paint it Black' can be toggled by blasting the quaver.

SLURPY
Creative Sparks
£7.95

A suck-em-up, for a change. Imbibe the blue glow bugs via your vortex but spit out the red ones; look out for yellow editions which give a measure of protection against the creepy crawlies in the cave. Clear each cave of its complement of tasty morsels before you get caught in an earthquake!



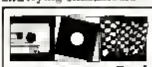
SOLO FLIGHT
U.S. Gold
£8.95

A classic flight simulation game for the Commodore 64 which became the best selling program of its type in the United States.

Instead of being given a pilot's eye view, the player can see the plane he is flying making it much easier to learn how to play the game and see which direction you are moving. Unlike the majority of flight sim's, Solo Flight's graphics are excellent, allowing the 'pilot' to get on with the job of

flying rather than deciphering a mess of lines on a TV set

A real must for the arcade and flying enthusiasts



SON OF BLAGGER
Alligata
£7.95

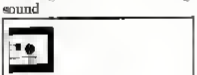
Entirely distinct from the Blagger. The screen is a window on a massive complex of alldes dead ends disappearing floors tread mills elevators, and roving untouchable security creations from the sprite generator Puzzle your way through 12 rooms, collect the keys to escape before the air turns foul Rag-time music thrown in. Fascinating for double jointed hurdlers

SORCERY
Virgin
£7.95

Thunderclaps and classical music eerie stuff for an action game with several puzzles to solve Pick up and use various objects and potions to clear your passage to Stonehenge It's all part of the race to "get it right" and free the world from the powers of darkness

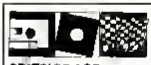
SPACE PILOT
Anirog
£7.95 (cass)
£9.95 (disk)

Trade bullets with bi-planes, prop fighters jet interceptors helicopters and UFO's Loop the loop as you down 56 aircraft and wipe out the squadron leader to earn promotion to the next time zone 4 way scrolling and convincing sound



SPEED DUEL
DK'Tronics
£5.95

In this 3D race track game you appear to be directly following your own car there is another formula-one racer on the track you can designate his speed (stationary for practice runs) and select whichever circuit takes your fancy The mountains and clouds "move" in response to your steering



SPITFIRE ACE
U.S. Gold
£12.95

U S Gold also have two other flight simulations in their range apart from Solo Flight and Blue Max

In the first Spitfire Ace you are a young pilot flying a Royal Marine Spitfire fighter during the blitz of London during the last war The game includes really incredible "out of cockpit" three dimensional graphics Spitfire ace has fourteen different missions to choose from ranging from easy to suicidal AND up to four players can fly at the same time

The second F-15 Strike Eagle, is a realistic simulations of the US Air Forces most sophisticated bomber Dog fights airbourne radar surface to air missiles ground target bombing and aerobatics are all included

A Head up display – a view from the pilots seat – combines well with the 3D graphics to give a treat to arcade as well as simulation fanatics

SPITFIRE ACE
U.S. Gold
£9.95

An easy to get-to grips-with, all action flight simulation in which you pilot the world's most romantic fighter Nine combat scenarios with three difficulty levels Essential bare instrumentation leaving you to concentrate on flying, shooting and improving your technique Though the graphics are "saw-edged your environment is realistic enough to give the feel of looping-the-loop and rolling The enemy can spit back to make every shot count If things get too bad there remains the bailing out option – something else to practice

STAR COMMAND
Supersoft
£6.95

Smash the perils from deep space before your energy is drained away Full frontal 3D action – face meteors and black alien drone craft with your yellow plasma bolts Between attack waves you repair your ship with the energy blocks credited for good shooting Tough

STARBASE DEFENSE
Anirog
£7.95

A formation of space craft is hovering above a force field Shoot them with your Stack Light Rifle or gun sight if you're using a joystick, as they peel off and transmute into bombs Prevent the destruction of your base and try to bag the mystery target

STIX
Supersoft
£8.95 (cass)
£19.95 (cart)

Here in the hundle of energy and create a colour pattern to hoot! Hypnotic sounds emanate from this unusual game as you proceed to claim 75% of the screen Each time the cursor makes contact with a line means that you have captured a part of the screen which is promptly coloured in More points and a different colour if you use "slow mode" Each level makes use of a separate colour scheme Unusual

STOCK CAR
Micro Power
£6.95 (cass)
£9.95 (disk)

Six tracks with 4 cars to create slipping skidding bumping action You just steer and select the correct gear As much fun as you make it

STRIKE FORCE
Bubble Bus
£6.90

Bound to be compared to Beach Head as it is a war simulation Scour the skys by scrolling the picture and dowo hellcopters by aiming and ranging your gun Move on the engaging bombers in a different setting and finely ward off enemy ground forces No substitute for B H

STRIP POKER
U.S. Gold
£8.95

Strip Poker, as the name suggests is a computer version of the card game that everyone has heard of – but few have had the good fortune to play

The player is challenged to pit his wits and clothes against two beautiful women pokerplayers

It takes several hours to finish a game, the result is hardly worth looking at unless you have a vivid imagination Personally I'd advise you to stick at making dirty words up in Scrabble

STRONTIUM ODG
Quicksilva
£7.95

A mutant bounty hunter has to blast his way across the bad lands of a way-out planet Also armed with dazzle flares and time warp bombs he will need to avoid prickly vegetation apart from out shooting desperados Various energy objects have to be acquired or he will fade out Fast furious– ideally suited to fans of the actual character in the comic 2000 AD

SUMMER GAMES
Quicksilva
£9.95 (cass)
£13.99 (disk)

A cross section of the Olympic bonanza starting with the opening ceremony 64 style Pole vault diving 4 x 400 meter relay 100 meter sprint (this is the only strenuous joystick action in the range) gymnastics freestyle swimming relay 100 metre freestyle and finally skeet shooting all using reasonable control functions leaving the competitor to perfect his skill The various animations have been thoughtfully composed and arranged to give a top flight simulation for the sporting buff Eight players may choose to represent any of 16 nations and hear the relevant national anthem at the awards ceremony Really is state of the art software

SUPER GRIDDER
Terminal
£7.95

An enjoyable "colour-in-the-squares" game with two scorpions in pursuit. It is said that they are joined by colleagues in the later stages. Eight separate grids to perform on. To help you, the fire button creates a temporary hole in the grid to deflect your pursuers. Very playable.

SUPER PIPELINE
Taskset
£6.90 (case)
£9.99 (disk)

Keep the water flowing through the pipes to fill the barrel. Escort the plumber and protect him from the nasties as he clears the blockages. Best to deal with the plug droppers, spiders and lobsters before they intrude on the network. Good music.

SUPER SKRAMBLE!
Terminal
£7.95

White background, that's unusual! This makes the graphics appear less plush. Eight sectors: free bombing run, launching rockets twisting cavern, meteor storm (could be better), cavern with space octopuses, rocket city (slight flicker), maze and the target. All stages display orange geology.

SWDDP
Micropower
£9.95 (case)
£9.95 (disk)

Face hordes of raptors (3 types) arranged a la Galaxians and admire the top notch explosions. The shrill cries will wear you down eventually but the intro music is mighty fine. Any mega-birds that your laser bass fails to intercept lays on an explosive egg thereby temporarily restricting your movements. Non stop action.

TAPPER
U.S. Gold
£9.95 (case)
£14.95 (disk)

Keep slinging down glasses of liquor to a motley collection of customers. To satisfy the boozer and get them out of the saloon is your aim. Almost as fast as you pump out the drinks they slide back – don't let them smash on the floor nor supply refills too quickly. Four bars to cater for with four separate screens each with its own set of characters: cow punchers, sporty types, punks and space creatures. Between screens there's a bonus round. A geezer shuffles 5 cans of soda after having shaken five – pick the right one for a bonus – the wrong for a facefull of sprey. Good colour, animation and sound.

TAZZ
Bubble Bass
£6.90

Fight bugs and fancy sprites in ten separate frames before the advancing walls crush you. Point grabbing bonus screens are thrown in as is a natty tune. Enjoyable action for commited zappers in a very well presented program.

THE EVIL DEAD
Palace Software
£6.99

A well presented skit of the well known film. Try and keep the evil spirit from entering a creepy shack as it will mutate your chums into green monstrosities which split up into dismembered sections if you shoot them. Plausible to susceptible minds by virtue of the preamble and moody music.

THE PIT
HES
£9.95

Rob the diamond mines and ignore the guardian robots but you might well beware of falling rocks. The only tricky bit is the filching of gems from the inner sanctum as needles tend to fall from the ceiling. Avoiding the slime monster is a non event as you make for the safety (ha ha!) of your space ship. Dreary and pathetic.

3D GLIDDER
Super Soft
£9.95

A 3D punk brick maze which you push around munching pills with the occasional POWER variety providing you with temporary ascendency over the monsters. Yes – MUNCH MAN in perspective. Could make you dizzy.

3D LUNAR ATTACK
Hewson Consultants
£7.95

At the crossroads: being part simulator and part perspective sci-fi combat. Lacking the immediate impact of an out-and-out arcade action shoot-up satisfaction grows with greater familiarity. Switch between map and full-frontal mode and choose between long range missiles and lasers. A very creditable attempt at portraying a 3D lunar landscape. Instrument readouts, of course.

3D TANX
DK'Tronics
£6.95

Elevate your gun barrel to obtain the right trajectory of fire, gain an appreciation of ballistics as you try to immobilise or destroy the tanks trundling across a bridge. Expect return fire. Several options of play.

THRUSTA
Software Projects
£7.95

Propel the dumpy shuttle craft through the network of platforms pushing boulders onto hatching aliens. The eggguards may be shot but only crushing will vanquish the aliens. Each screenful of nasties behaves in a different way. Software protection code is used – bit of a drag.

TOM THUMB
Amrog
£7.95

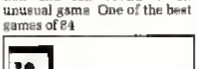
T.T. has decided to explore a pyramid: there are 8 separate labyrinths wherein, each of which obliges T.T. to collect slight keys and open the same number of locks. Only then will you have outsmarted the cunning designer of the labyrinth. The four way scrolling screen is a window on a small section of the chambers. F5 gives a complete plan. Springs, slides, ladders and roving guards are part of the six – fold challenge. Hours of intrigue for LEVEL 9 revellers.

TRAFFIC
Quicksilva
£7.95

An Arcade/strategy program, very absorbing – highly novel. Quite simply you control the traffic lights in an area of a city, the object being to prevent bold ups. Even with the benefit of a bird's eye view, screen tow isn't easy. Recommended as 'something different'. Everyone will believe it's a piece of cake – till they try.

TRASHMAN
Quicksilva
£7.95

Suburban life is reflected here as a dustman you must follow the garbage van nipping up pathways and bumping bins to be emptied then replace them, perhaps doing bonus tasks on the side for householders. The van moves on, there's a busy road to cross, dogs to avoid, a schedule to keep to and more bins up the road. Good aerial-view graphics, realistic animation and fair sound in an unusual game. One of the best games of '84.



TRIAD
Sumlock
£9.95

A sort of 3D Galaxians with impressive meanies followed by a shower of colourful meteors. Line up your gun-

sight hyper quick and keep pumping Esch If you want it If not satisfied with explosions

TRIPLE TOURNAMENT
Terminal
£7 95

Three two-player games on one tape The familliar western shoot-out has an ace rocket race game (very good surge through a tunnel popping barriers and avoiding asteroids) and a "shoot the kamikazes" effort for company Not to be confused with the silly 150 game compendium packages

TURBO 64
Limbic Systems
£7 99

Formula 1 simulation with two tracks to race around in glorious 3D Competent in every way regarding the nitty-gritty but utterly ruined by the security code – an eye – straining colour grid Anyway you get a driver s eye view plus all the necessary controls

TURTLE JUMP
Romik
£6 95

Mastermind an ant's journey over the seas by hopping on the back of slippery turtles Stop off for food (bonus fruit) and steal the treasure. Travel home again hopefully avoiding the crocodile Learn to utilise logs and magic islands Offbeast sonics in s very individual game

1
WILD FIRE
Supersoft
£8.95

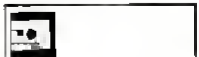
Fire-raising robots intend invading 8 buildings (mazes) this leaves you with the job of dealing with the conflagrations with extinguishers and fire breaks while searching out and destroying the droids Bonus screens between each building keep up the tempo In this panic inducer Very apt sonics

WORLD CUP FOOTBALL
Artic
£6 99

Real-time soccer action for up to nine players who may select any of the 16 teams the 64 fills in with the others Each match is short but at least you may wade through the tournament fairly quickly A practice mode is available to get accustomed to the action which is not a true reflection of the actual game

ZAGA MISSION
Anirog
£7 99

Refined graphics with diagonal scrolling Pilot your chopper through a perspective maze picking out openings in walls and being ever aware that the portals may close if the mood takes them A high degree of 'perspective awareness' is called for; experience with ZAXXON wouldn t go amiss either A well presented dexterity tester



ZAPPY ZOOKS
Romik
£8 99

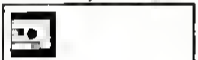
A PAC MAN clone with a high degree of customising allowed which is its strong point BUT it ain't the same with ghost substitutes 15 levels and up to 6 chasers with a choice of joystick modes tossed in

ZAXXON
U S Gold
£9 95 (case)
£14 95 (disk)

The licensed version Diagonal scrolling, shadows and perspective graphics add up to a 3D presentation Slip through gaps in the walls and force fields, shoot the missiles and bomb the ground targets After the outer space conflict you get to confront the giant robot – ZAXXON

ZODIAC
Anirog
£7 99

A shoot'em-up for astrologers Venture through umpteen passageways shooting frenzied freaks and grabbing the sacred signs When they have all been collected you have to retake them from super-demons in their own lair with the aid of fancy footwork



ZYLOGON
PSS
£6 95

A ZAXXON cover job You have to battle through many fortresses before confronting the robot The space battle screens are a bit weird The programmer has chosen to give the floor a very distinctive, bold pattern Really challenging

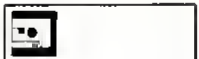
FOR THE VIC

ABDUCTOR
Llamasoft
£5.00

A barbaric space combat best described as being fast and getting faster Based on COSMIC KIDNAP It has you zinging shots at formations of aliens snaking and streaming after the humanoids under your protection For each successful abduction there s an explosive skull tossed your way Defend your mates and earn an extra stage for your laser cannon that's when the action really starts

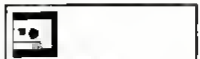
ANDES ATTACK
Llamasoft
£5.00

With 8K you can explore Llamasoft's interpretation of DEFENDER There are 10 pre-selectable frames each requiring you to protect llamas from the clutches of landers anihilate all the snatchers to move up a level 5 UFO types plus mines to tangle with, smart bombs of course Not easy



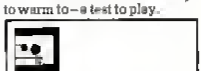
ALPHOIDS
Romik
£5 99

Very very loosely based on CENTIPEDE Cyan space worms accompanied by green meanies wend their way to your space ship Bust the worm and you are left with cosmic toadstools Zap passing tankers to gain extra fuel but beware of the acid rain Keep an eye on the warning guage don t let your laser tubes overheat 'Star Wars' music too!



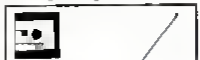
BATTLE GROUND
Omega
£1 99

Rain shots on the advancing lumbering armoured vehicles Dodge behind your disintegrating shields and sally forth in your probe to form outlying fortifications exchange close range fire while you are about it too 10 selectable levels with several armoured waves Easy to warm to – a test to play.



BOMBER MISSION
CBM
£4 95

After duly loading this 16K VIC game I chanced upon a succession of buss – no one was interested In theory the scenario is O K but buy it at your peril Tough – could have been a good flight simulator



BONGO
Anirog
£7 95

16K supports the expanded screen VIC version of the '64' game One of the better VIC games

BONZO
Audiogenic
£5.95

Good graphical presentation expanded screen and bold convincing characters in this ladder – maze game Pick

up the boxes from under the noses of the big green BONZOs Start off with two chasers and graduate to four A good investment for 8K owners

RRICRS
Pelace Software
£5 99

Highly compulsive. Jump on top of the falling bricks until you reach the top Avoid having your brains dashed out and remember you can only jump one step at a time Isolated bricks may be moved and you can jump down without coming to grief Enough to keep any basic VIC red bot

CENTIPEDE
Atari Soft
£8 99

Pleoty of sound with good use of the VIC's pelette in this arcade standard No facility for centering the screen

CHOCABLOC
Peramount
£6 50

An 8K VIC version of PENGY set in a chocolate cold-store Very hard to survive for long Good multicolour meanies SUPERB music to accompany the ice-block-sliding action Crush the enemy, deal with their eggs and find time to line up 3 special blocks for a bonus

CONNECT FOUR
Artic
£5.95

Sound implementation of the ancient board game Play the VIC or a human opponent (they are easier to beat). Better use could have been made of VIC's eight colours

COPS 'N ROBBERS
Abrasco
£5.50

Five sheets of shoot-'n'-run shoehorned into the dear old VIC Make for the lift to change floors, grab some diamonds shake off your pursuers and repeat Occasionally you have to return to your car to dump the swag and reload your pistol Average entertainment

COUNTDOWN
Paramount
£5 50

Evade the bullets and electric arcs in the first phase Scramble through the jungle and finally grope through the sewers to collect the keys and make safe the time bomb Three fairly testing mazes for the 8K VIC

DODO LAIR
Softwers Projects
£5.95

A space zap for those who demand action on the frantic side of fast Nine waves of aliens to penetrate, each composed of attack units in many forms After each wave you get to pal the DODO There lies shield facility and you certainly need it Unusual opponents

FALCON FIGHTER
Interceptor
£5 00

Non-flickering scrolling through 8 colourful stages in this SCRAMBLE style game Apart from picking up fuel, ammo best to be earned by kapowing the relevant dumps Missiles, meteors, bobbing saucers and space mines but no maze Not easy, but enjoyable to connoisseurs of the genre

FATTY HENRY
Software Projects
£5 95

Help the octopus to douse the flames in the oven before he is cooked by collecting drops of condensation Beware of red bot spitting fat, oveo foam and the kitchen dog 10 separate screens on the basic VIC! Very good

FIRE GALAXY
Anirog
£7 95

A 16K expended-screen cousin of SCRAMBLE Pyrotechnic explosions howling winds with 8 stages to penetrate Ground-to-air missiles, bobbing saucers, cannon balls mine layers a maze with guardians and of course ammo & fuel dumps Anirog's pucka SCAMBLE – is superior

GALACTIC ABDUCTOR
Anirog
£7 95

Formellons of giant hawks fly about the expended screen swooping on your humans Weaken and destroy the captors, learn their flight patterns and deal with the eggs. Very good flapping sounds 16K needed

GRIDDER
Terminal
£6 95

255 different grids to colour in as you race against time and side-step the chasers You have the power to create temporary holes in the network to re-mute the pursuers but there is not time to dally Easy to pick up tricky to master Good use of colour and sound.

GRIDRUNNER
Llamasoft
£5 00

Essential equipment for unexpanded VICs Petrol the grid disintegrating the segmented droid centipedes, vapourise the developing pods and keep out of tight corners Frenetic ringing sonics complement this all actions CLASSIC game Obviously CENTIPEDE gave Jeff Minter the original inspiration but this is something else! This game will last until the VIC crumbles away

GUNSLINGER
Omega
£1 99

16K A classic, 1 or 2 player western shoot-out on an expanded screen featuring undertakers to remove corpses and wagons to provide mobile cover Can't see how you can beat the computer so it's got to be 2 players

HELL GATE
Llamasoft
£5.00

You control four lazer cannons – two directly with two reciprocating sleves – directing alarming fire power at aliens warping into your defence sector Automatic smart bombs are to hand as a last ditch measure Cascades of colour and waves of sound accompany your efforts to master the enemy

INSECTOR
Romik
£5.99

Kinda like Defender A horizontally expanded screen displays gigantic insects with yellow pods cyan spreaders and green landers for company Beware of the bombs, rescue the hapless humans and thrill to the ace sonics You can't go wrong with 16 speeds to choose from

LASER ZONE
LlamaSoft
£5 00

+ 8K Control two guns at once – verticle and horizonsl to eliminate two alien forms mastering diagonal fire is a must Purple and yellow nasties everywhere plus hard skinned exploding pods Smart bombs for dire straits renewable if you're good Grs at scattering debris effects and high decibel sounds

MATRIX
Llamasoft
£5 0

M.L.8.E.T.
Llamasoft
£5.00

A development of Gridrunner requiring 8K expansion. Oudies of extra features: the snitch causes premature detonation of the X,Y zappers; deflector shields – plasma bolts zinging everywhere; herds of camels and diagonally tracking cyan pedes. 20 screens of murderous mayhem.

Metalic sonics keep pace with the action as you work the deflector up and down directing ricochets at the invading spiders. Cut their threads for bonus points and sting those on the floor who thought they could slip through the net. Hectic action through 33 levels of original game play. An essential accessory for zany zappers.

PINBALL WIZARD
Terminal
£6.95

An excellent simulation with believable gravity, flippers, bumpers, rollovers and a jackpot. Cheats may even "nudge" the table. As it is realistic skill can be developed. Worth buying to vary your library – good sounds and flashing lights.

RAPIER PUNCH
C.B.M.
£4.00

One hundred levels of groping about in the dark. As you move around patches of the screen light up helping you to discover the treasure chest. Obstacles may block your way or maybe meanies who can run through with your rapier. If a tone is sounding, daggers can be thrown as well. Several, industrinct alien forms in this middling game. Would be much better on an expanded screen.

DLLY
Thor
£6.95

Slip through the octopus' poisoned tentacle tips, harvest the pearls and avoid the sharks as you shoot up for air. When all is safely gathered in, jelly fish will take a bow for a screen or two. Blow the man Down' serenades you.

OUTBACK
Paramount
£5.50

An original game for the basic VIC. Slice through the swagmen's balloons – not always easy as they come thick and fast – to save the baby roos. Grab the bonus fruit at the top of the pulley. Tuneful and colourful.

PERILS OF WILLY
Software Projects
£5.95

16K allows you to sample some of Manic miner madness. In this instance you must collect musical notes from the various platform complexes spanning 33 screens. I don't think there is another game quite like it for the Vic so the experience should be refreshing. Bags of colour to brighten up the hurdle-hopping.

SHIFTY
Audiogenic
£5.95

NOT Pacman in 8K but somewhat similar. Eat the dots and swing the doors to thwart the ghosts. Only two pursuers on the first screen but reinforcements wade in to counter your successes. Interesting rather than thrilling. Not as good as the old favourite.

SCRAM 20
Artic
£5.95

A frenetic, five stage version of scramble. Some of the geology is a but chunky and the control functions are slightly out of the ordinary. Suitable for those demanding a challenging, colourful program.

SKRAMBLE
Sumlock
£7.95

Sumlock's version is absolute rubbish. Two stages of flickering garbage.

SKRAMBLE!
Terminal
£6.95

The best unexpanded – VIC SKRAMBLE? Yes. Eight stages offering a real challenge. Navigate the tortuous cavern, despatch the giant spiders, try and avoid the wellaping big fire balls; squeeze through the maze. Plenty of targets to bomb, with avenging rockets after you. Sensible use of colour and sound.

SNACKMAN
Tom Mix
£8.00

A jerky, fairly faithful copy of Pac Man for the basic Vic. Enough said.

SQUISH
Palace Software
£5.99

Crush the purple, arrow-spitting insects between pebbles. 20, teasing screens of original entertainment to keep your basic Vic happy – Well worth having but don't expect magical graphics and sonics.

SPACE ESCORT
Romik
£5.99

Escort 25 mega freighters to a new world. Thrust your protector into combat with four waves of multicolour – mode space craft and destroy the odd asteriod before each transporter makes a landfall. Each hit received weakens the transporter's shields, marked by a change of colour. Good sound – good game.

SPACE SWARM
Software Projects
£5.95

Similar to Arcadia but nowhere as entertaining. Rather dull alien forms in five waves. Survive a countdown to progress to the next wave – tricky as your ship slows down towards the end of each stage. Nothing going for it.

SPIDERS OF MARS
Audiogenic
£5.95

Large multicolour – mode cannon fodder, which of course change hue with the screen/border combinations. 8K of scrolling shoot 'em up featuring bats, bombing dragonflies, sting alhgiog wasps and dangling spiders. Nine battling levels of sharp shooting. Fearsome flying action.

STAR BASE
C.B.M.
£4.95

A not too impressive scrolling screen game for the basic VIC. Save the silly scientists by blasting away the hover ships before they can use their tractor beams, just aligning your gunsight correctly does the trick. Only shoot the yellow ships – avoid the red deflectors. Good explosions.

STAR DEFENDER
Anirog
£7.95

16K of DEFENDER action with a fully expanded screen. Smart bombs, hyper-space, jump and invisibility mode help, but ultimately you need to rely on sheer skill. Really hectic action especially in the dog-fight section which is heralded by awesome thunderflashes. Good multi-colour-mode graphics.

TRAXX
Llamasoft
£5.00

An 8K, grid-painting game where you will be hounded by up to 9 cyan bugs as you attempt to colour everything red. Unless your tracer-line meets up with more red within three lengths it vanishes – back to a red square for a refil 81 levels, with background music. This is not mainstream Minter.

TURBO GRID
Microdeal
£8.00

A greased lightning game for the basic Vic. You and the computer control motor bikes which leave a trail as they travel. First one to hit a trail is a ninny! Best out of ten trials to decide top dog.

WUNDA WALTER
Interceptor
£6.00

Great four-screen fun. Belly flop a balloon to squash little wobasts and steer clear of outrageous alien derrigeable-busters. Each level brings a new landscape to scour for food with sharp rocks and prickly accoutrements to give a wide birth to. Good sonics with the 'Yellow Rose of Texas' gratuitously bunged in.

ADVENTURE

There are so many adventure games available for the Commodore 64, both text and graphics, that they deserve a directory of their own. Not so many for the Vic though, as you will see. Here's what the codes mean:

T — text
G — graphics
AnA — animated
ArA — arcade
B — beginner level
I — intermediate level
A — advanced level

FOR THE 64

ADVENTURELAND
G, B
Adventure International
£9.95

The brainchild of Scott Adams who inspired by Colossal Caves on a mainframe, set out to bring the excitement of adventuring micro-owners back in 1978. Despite it's age, Adventureland still plays fresher than most new adventures.

How many ways to wake a sleeping dragon? How do you cure chigger bites? And oh, that obstinate bear on the ledge!

Essential playing for any keen adventurer, and though it contains some tougher problems than the beginner would normally expect, is highly recommended.

ADVENTURE QUEST
T, I
Level 8
£9.90/£11.50

Use cunning or brute force to overthrow the demon king in the dark tower. To do this you must get past some elaborate defences and nasty guards.

Long text descriptions and a very good vocabulary help you to explore some 200 locations in pursuit of the Quest.

AFRICA GARDENS
T, I
Gilsoft
£5.95

One of the Quill'd adventures from the Golden Collection of Gilsoft.

AFRICAN SAFARI
Ano, I
Interdisc
£9.95

This is a 'scrolling' 3D graphic adventure, for which a joystick is essential to play. If it's worth the effort at all.

You take the role of an explorer with a bad back and move east/west with the joystick, north/south by text commands. If the program doesn't like what you tell it, it remains silent, leaving you wondering. Perhaps you should have stayed at home and visited an osteopath instead.

AMAZON
G, A
Trillium
£19.95

You have been hired by a hi-tech research firm to undertake a secret and deadly mission in the Amazon. Written by Michael Crichton, author of The Andromeda Strain, Amazon offers three levels of play, all challenging in their own way.

ARROW OF DEATH
(Parts 1 and 2)
G, A
Channel 9
£5.95

Two of Brian Howarth's Mysterious Adventures, the Arrows from the sequel to Golden Baton, first in the series.

In Part 1, the Baton has become tarnished, and radiates a malevolent aura of evil. Your task – destroy the evil. Part 2, which continues the epic, equips you with the means to destroy your enemy, but you are in a strange land far from home. Can you survive the deadly perils confronting you?

Although forming one Epic, each part can be played and enjoyed separately.

AZTEC – HUNT FOR THE SUN GOD
G, I
Hill MacGibbon
£9.95

You are a young Aztec cop-persmith who goes in search of the sun, which fails to rise over your village.

Your commands are by single key-stroke, and you move forward through a perspective graphical representation of the adventure 'map'. Turning though 90 degrees changes your direction. This is a 'Lords of Midnight' approach, but the graphics do not anywhere reach that standard.

AZTEC TOMB
G, B
Alligata
£7.95/£11.95

Set in an Amazon rain forest you must find and explore the Tomb, starting off in a fairly mundane house that could easily be in London suburbia.

The problems are quite nice, and cleverly arranged. The graphics, although nothing special, do reflect changes in the situation, and combine to make an interesting slightly above average adventure.

I wouldn't pay the price for the disk version, though.

AZTEC TOMB REVISITED
G, B
Alligata
£7.95/11.95

Quite a different game to play from its fore-runner. Revisited features a fixed format screen display, with minuscule graphics picture of the location.

With a much more limited vocabulary and a plot that doesn't seem to be too coherent, this is a typical case of the sequel not being up to the standard expected.

BARSAK THE DWARF
T, I
Gilsoft
£5.95

Another of the Gilsoft Golden Collection.

CASTLE BLACKSTAR
T, I
SCR Adventures
£TBA

Recover an orb, rid it of its evil powers, and collect treasure, are the objectives set the adventurer in Castle Blackstar. A good plot combined with interesting puzzles makes this an above average game.

Points are awarded for carrying out certain actions and for collecting things. A novel swear routine features a swear box to where the player is banished until he leaves behind an object of his own choice!

CIRCUS
G, A
Channel 9
£6.95

Stranded in a remote spot your car has run out of petrol In your search for fuel, you stumble across a circus tent complete with wagons and props – but strangely deserted Or is that a clown you see over there ? Perhaps it was just an illusion

An excellent game with bags of mystery and suspense Circus is one of the best Mysterious Adventures from the keyboard of Brian Howarth

CLASSIC ADVENTURE
T, I
Melbourne House
£6.95

Once again Colossal Caves comes to the micro in a very acceptable version from Melbourne House Don't rely too heavily on clues picked up from other versions for this one seems set to fool you with a few subtle variations!

COLOSSAL ADVENTURE
T, A
Level 9
£6.90/£11.50

An apparently faithful remake of the original Colossal Caves but with Level 9's own end-game tacked on

Just as you though you'd got there, suddenly you are in trouble again!

THE COUNT
G, I
Adventure International
£9.95/£13.95

One of Scott's own favourites this is the classic Drac-killing game Sleep too much and you will wake up with some very nasty bites Penetrate the inner recesses of an old mansion, complete with dumb-waiter, and then plan your action

Initially it all appears fairly easy – but there is a time and place for everything and time seems not to be on your side!

CUT-THROATS
T, I
Infocom
£TBA

A complex game in typical Infocom style by Michael Berlyn author of Suspended and Infidel A skin diver pro positioned to locate two sunken ships off Hardacre bble Island you meet with intrigue and deception in a game with an off-beat sense of humour

Cut-throats is almost two adventures in one for depending upon which ship you come across the whole plot of the game changes Some of these changes are none-too obvious – let them go unnoticed at your peril!

DEADLINE
T, A
Infocom
£34.95

A murder has been committed – or could it have been suicide? As a detective Inspector you investigate the evidence and question the suspects in the setting of an old country house

This is a classic whodunnit but in pursuit of the guilty party beware! If a certain someone suspects that you are getting too close for comfort you might just be next victim!

DENIS THROUGH THE DRINKING GLASS
T, I
Applications Software
£5.50/£9.50

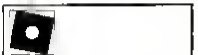
A Quill'd political satire in which you, as Denis Thatcher must evade the clutches of Maggie to escape 10 Downing Street One false move and you could end up as headlines in the Sun!

Your ultimate goal is the Utopia of the cellar of the Gravedigger's arms and en-route you will meet some very familiar characters But you must have a snifter every 10 moves or you are dead! First problem – find the Gin bottle!

DUNGEON ADVENTURE
T, A
Level 9
£9.90/£11.50

The Demon Lord of Mlnas Tirith is dead He must have been very rich A swift ride to the Black Tower could make you very rich!

With 200 locations to explore and 100 objects to help and/or hinder you in your progress to your goal Dungeon Adventure is rich in variety and overflowing with problems for you to solve



ENCHANTER
T, A
Infocom
£34.95

A novice in the art of magic you are summoned by Belboz, head of the Circle of Elders, to overthrow the evil and powerful Krill But first you will have to find spell scrolls and learn how to use them!

In a fascinating fantasy game from Infocom, Enchanter follows on the traditions and legends of Zork, and the Great underground Empire.

ESCAPE FROM PULSAR 7
G, I
Channel 9
£6.95

Alone on a gigantic space freighter, you must escape via the shuttlecraft – if you can reach it before you become another meal for the mutated zoo specimen that has hungrily devoured your fellow crew members And you are the only food left aboard

Pulsar 7 is the filth in the Mysterious Adventure series

ESPIONAGE ISLAND
T, I
Artic
£6.95

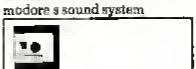
On a spying mission, your plane bursts into flames and you land on a mysterious island by parachute How will you escape?

Bridge buildings driving, murder disguise and the handling of explosives all come into this adventure – plus some very tortuous phrasing of commands

EUREKA!
AnA, A
Domark
£14.95

Five adventures in one combine to make this huge package Written by Ian Livingstone and programmed in Hungary each adventure is linked and takes place in a different era, and you have to be unscrupulous to succeed! At the end of it all there is the carrot of a £25,000 prize

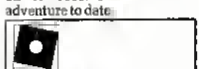
Eureka combines fast and original graphics with spectacular use of the Commodore's sound system



EYE OF THE BAIN
G, I
Artic
£6.99

As Alvanian warrior Tarl you must escape the desert lands with the Emerald known as Bain There's some every tricky problems to solve, and some excellent graphics to gaze at whilst you ponder them

Eye of the Bain won a prize for an Adventure plot competition in a magazine and went on to become Artic's best adventure to date



FAHRENHEIT 451
G, A
Trillium
£19.95

Produced in collaboration with the author of the best selling Sci-Fi book the adventure game provides a sequel to the original story

The setting is New York City in a world where even owning a book is dangerously illegal The title of course is the burning temperature of paper

FANTASIA DIAMOND
G, I
Hewson Consultants
£7.95

The family heirloom has been

stolen, and taken to a fortress across the river. Your job – recover it and rescue Boris the Master Spy, imprisoned in a previous attempt at recovery.

Difficult, but not impossible for an adventurer of modest experience this is a well designed and executed adventure.

FEASIBILITY EXPERIMENT
G, A
Channel 8
£9.95

You are chosen to be the saviour of a dying race of super-intelligent beings from far across the universe. Avoiding death, which is never very far away, you must become their hero.

GHOST TOWN
G, I
Adventure International
£9.95

This is a classic treasure-collecting adventure, but set in a mysteriously deserted Western town. There's some mighty mysterious problems to solve too.

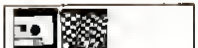
How do you break IN to the jail? What are the ghostly goings-on in the saloon all about? How can you blow a safe without taking yourself with it! Scott Adams at his best!

GOLDEN APPLE
T, I
Artic
£6.95

A treasure seeking game where some very illogical things happen. A silver bar hidden within a log? A game without an identifiable theme. Golden Apple is well written but lacking in flair.

FOOLS GOLD
T, I
Romik
£6.99

Explore the old mining works and find treasure. That is the theme behind this text-only adventure from Romik.



GOLDEN BATON
G, I
Channel 8
£6.95

The first in the Mysterious Adventure series from Brian Howarth originally written for the TRS-80 before the CBM-64 and Vic were thought of!

Recover the Golden Baton, a priceless artifact, if you can solve some very tricky problems en-route. Feeding crabs seems to be amongst the most difficult!

HAMPSTEAD
T, A
Melbourne House
£9.95

A delightfully irreverent game that pokes fun at those who have made it to be achieved the very heights of social acceptability.

Your mission – to attain the state of Hampstead – but you must do it the hard way from the bottom. So you start in a dingy flat with a pair of bicycle clips. Never mind, it will all go well if you do the right things!

HEROES OF KARN
G, I
Interceptor
£7/£9

Your mission is to rescue four heroes held captive and return them to the realm, collecting treasures on the way. A good plot with some excellent graphics but they are sleep-inducingly slow. The phrasing of commands can be very tricky too, especially when you speak to one of the characters.

THE HOBBITT
G, I
Melbourne House
£14.95

What can be said that isn't already known? Based on the book, and packaged with the book. Hobbit was one of the very first adventures to feature colour graphics. Take Thorin in tow and off you go.

Riddled with bugs, Hobbit, the game, is almost as famous for these as is the classic story.

THE HULK
G, I
Adventure International
£9.95/£13.95

Nearly every small boy has fancied himself as Hulk and if you have, here's your chance! But life isn't as easy as you may think, for there are a few mind-bending problems in this the first Questprobe adventure based on Marvel Comic characters, and written by Scott Adams.

The main problem is how to separate a bio-gem from an energy egg, but before you can do that there's a whole lot more to get through!

INCA CURSE
T, I
Artic
£6.95

Set in the land of the Incas this is a rather drab game with little of interest. Probably the worst of the Artic series.

INFIDEL
T, A
Infocom
£34.95

This is a pyramid exploration adventure, but with that difference that only Infocom can impart to a game! Full of traps and pitfalls to foil the blundering adventurer, Infidel also sports some hieroglyphics which will give you some clues – if you can decipher them.

Add to that a devastating surprise endme, and you have a first class highly entertaining game.

KING ARTHUR'S QUEST
G, I
Hill MacGibbon
£9.95

A perspective graphic adventure in the same series as Aztec – Hunt for the Sun God. In this one, as King Arthur of Camelot you must free your land of an evil spell that covers it with a thick blanket of mist, causing the ground to freeze and the animals to die.

KLARTZ AND THE DARK FORCES
G, I
£9.95

Klartz travels around through time and space, using his evil to corrupt the very fabric of the universe. He must be destroyed, but doing so is no easy task.

The game comes on two cassettes but unfortunately it is less inspiring than its title. User unfriendly, with a difficult vocabulary and a PLEASE RECOMPUTE message if it doesn't understand a command. Klartz is obscure and difficult to get to grips with.

LORDS OF TIME
T, A
Level 9
£9.90/£11.50

Enter a grandfather clock and explore nine different levels or time zones in order to solve this adventure. Had to be from Level 9 with a theme like that!

Each zone contains a number of puzzles and events in one zone will have to be conquered in order to overcome problems in others. Up to the usual high standard of Level 9.

MACBETH
Creative Sparks
£14.95

An impressive list of qualifications follows the names of the team who wrote Macbeth. The game is in four parts, and you take on the role of Macbeth or Lady Macbeth depending upon the part, not upon the player!

The game is so closely and accurately tied to the play (which comes with the package) that a player who completes the adventure will inevitably end up with an in-depth knowledge of Macbeth.

MAGIC STONE
G, I
Audiogenic
£5.95

Explore the haunted mansion of Graf von Schwarzherzen in the wastes of Transytvania, to recover the magic stone, possibly the catalyst for the alchemists dream – the transmutation of lead into gold.

MASK OF THE SUN
G, A
Broederbond
£29.95

You are an archeologist into whose possession comes information as to the whereabouts of the invaluable Mask. You catch a plane to Mexico and hope you are on the right track as you start your search in earnest.

The plot is very strong, more so than can be described here and the game is enhanced by some spectacular graphics on this four-disk adventure.

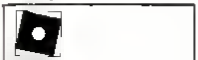
MINOBENDER
T, I
Gilsoft
£5.95

Yet another of the Gilsoft Golden Collection which rambles on and has sudden death a step away with no warning. Competent and, I suppose, average for a Quill'd adventure, but no more.

MISSION OM
G, I
Spectresoft
£7.95

One of those games where the player is endowed with values for Strength, Armour, Damage and Energy. Played on a formatted screen. Some interesting ideas here, but a difficult vocabulary, a long load, and a long data-read if you die.

Nevertheless, there are some humorous bits that offset the bad points.



MURDER ON THE ZINDERNEUF
AnA, I
Electronic Arts
£29.95

If text whodunnits qualify for the description Adventure, then so does this albeit a whodunnit with textless input, but text ouput. Joystick operated selection menus drive the game, and movement around the graphics of the airship Zinderneuf where a murder has been committed is also by joystick.

You choose which tec to be, the CBM-64 decides who has been done away with, so it's different each time. You have till you reach New York to come up with an arrest.

MYSTERY OF MUNROE MANOR
G, I
Severn Software
£8.50

There's something sinister going on in the Manor, and if you can deduce the right words, and get the right ideas than you might solve the problems and complete the game.

There's sound effects and graphics that change as you play, but oh – those broken stairs!

NOMAD OF TIME
G, I
Mosaic Publishing
£9.95

This is based on the Oswald Bastable stories by Michael Moorcock, and programmed by Shards.

In Nomad you have a small light airship and enough food and water for 60 days. In this time you must save the world. Your only instructions for the mission are "Eyes to the Cold".

ORACLES CAVE
AnA, I
Oorces
£7.95

An animated game in which you first choose your quest object and then move a little fellow through a network of tunnels and caves in search of it. You must collect 40 items of treasure, in real time.

Apart from movement, instructions are entered by single keystrokes. The cave layout changes every time you play.

PERSEUS AND ANDROMEDA
G, I
Channel 8
£5.95

A Mysterious Adventure in which the player travels into the realms of ancient mythology in search of the hidden secrets of the legends. Grotesque monsters and supernatural powers must be overcome to succeed in this quest.

PETTIGREW CHRONICLES
G, A
Shards
£9.95

Originally known as Pettigrew's Diary and Operation Safras, and first written for the ill-fated Dragon, these games have now been combined in a two-cassette pack for the Commodore under the Pettigrew's Chronicles title.

PIRATE ADVENTURE
G, B
Adventure International
£9.95

The second and easiest of the original Scott Adams series. In Pirate you start in your London flat, and make your way if you can discover how to Pirate's Island.

Soon you will discover what you have to do to reach Treasure Island and, with the aid of a parrot, will have numerous problems to solve to gain possession of the treasures there.

PLANET OF DEATH
T, I
Artic
£6.95

A smallish adventure featuring a slimy alien and your attempt to escape the planet. Not as interesting as it sounds.

Familiarity with dusty bin might be an advantage as you near the successful completion of this adventure.

PLANETFALL
T, A
Infocom
£34.95

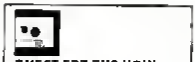
A junior rating aboard the stellar patrol ship Felnstein, you have to make a death-defying escape only to land in an alien world, where all the signs are written in an alien tongue. Deciphering them is one of the problems but you are aided or hindered by a rather independent robot called Floyd in this humorous Infocom adventure.

PUB QUEST
T, I
Dream Software
£5.95

Your debts at the Chequered Flag must be paid and the money is down in the sewers. This is the setting for Pub Quest, and a thirsty game it is too! And not at all easy – how. Do you cross the road safely?

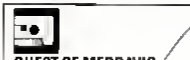
PYRAMID
T, B
Mogul
£5.95

A very small text adventure with some very illogical routes from location to location. The problems are simple and death comes without warning. Not recommended.



QUEST FOR THE HOLY GRAIL
G, I
Dream Software
£8.95

Ni ni, ni – it's those knights from the Monty Python Film! If you like your shrubberies pinted in tiers then you'll shed none in this game – but be warned: it is not as easy as watching the film!



QUEST OF MERRAVIO
T, B
Martech
£7.95

Retrieve the magic firestone of the dwarfs, guarded by a dragon. But first you must gather a suit of armour scattered around the land of Thargon.

Not a very clever game as far as user-friendliness is concerned, and certainly not the "Adventurer's adventure" it is claimed to be.

RENDEZVOUS WITH RAMA
G, A
Trillium
£19.55

Based on the best-seller by Arthur C Clarke, this is a very faithful conversion of the book with graphics. There is a mass of text detail and an opening sequence every bit as good as a film - complete with theme tune.

Two arcade games form part of the adventure, and must be played out as the plot unfolds. Rama comes on two double-sided disks.

RETURN TO EDEN
G, A
Level 9
£9.90/£11.50

This is the sequel to Snowball, where as Kim Kimberley, unisex hero, you have landed on Eden and must save the planet from the robot system designed to make it habitable for the colonists, but now rapidly destroying the ecology.

But first you must escape the wrath of the Snowball, which has judged you (wrongly) to be guilty of murder. Plenty of Level 9 type text, and graphics too!

RING OF POWER
G, 9
Quicksilva
£9.95

The King's crown jewels are missing, following his death, and whoever recovers them will be crowned the new King.

Slow response, poor vocab and meaningless descriptions combine to make this a game to avoid.

THE SAGA OF ERIK THE VIKING
G, I
Mosaic Publishing
£9.95

Terry Jones' modern fairytales brought to life in an adventure designed and written by Level 9.

Erik (you) and his crew set forth in the good ship Golden Dragon, and visit many lands across the seas, each with puzzles to solve to reach a successful conclusion to the adventure.

SAVAGE ISLAND
(Parts 1 & 2)
G, A
Adventure International
£9.95/£13.95 each

Among the more mind-bending of the Scott Adams series, Part 1 is easier than Part 2, and must be solved first – or you can't start the second part.

A volcanic island is the setting for Part 1, where an unnerving statue of a head is found on the beach. A bear, more difficult to deal with than the Adventureland one, awaits the adventurer at the top of an extinct volcano, and if that's not enough, there's a hurricane (named after Scott's wife) to contend with.

What seems like a desert island adventure turns into a chilling science fiction, and is continued in earnest in Part 2, the opening of which varies according to how you finished Part 1. But Part 2 requires some heavy thinking to get past the first three of four moves and then starts to get difficult!

SEARCH FOR KING SOLOMON'S MINES
G, I
Severn Software
£9.95

A trek across jungle and raging river to the mountains, with passage impeded by hostile natives in search of treasure in the mines. Will you be able to find them? Will you survive the trek through the jungle?

SECRET MISSION
G, I
Adventure International
£9.95/£13.95

The third in the Scott Adams series, this was once called 'Mission Impossible' – until the TV people objected.

A tape recorder spells out your mission, and should you decide to accept it, you will be roaming a network of colour-coded corridors with doors requiring differing authority cards to allow entry. All in an attempt to save a power plant from sabotage.

SHADOWKEEP
G, A
Trillium
£19.95

A role-playing fantasy game inspired a novel by Alan Dean Foster, author of Alien, on which this game is based.

The formidable challenge here is to free the wizard Necomendon and recapture Shadowkeep, a fortress of mazes and monsters.

SHERLOCK
G, A
Melbourne House
£14.95

A double murder has been committed, and if you can find out about it, you, as the super-sleuth, must prove to Inspector Lestrade whodunnit.

A complex plot full of red-herrings and disguises, in which you are helped or hindered by an over-friendly Watson. Played in real time, too – pity about the graphics, and the bugs look set to rival those in The Hobbit.

SHIP OF DOOM
T, I
Artic
£9.95

You are in an alien space ship and must escape. First you must get the key, secured under a glass cover. How you do it, and go on to complete the game has baffled many an adventurer – not surprising when you eventually discover the tortuous wording of the necessary commands.

SNOWBALL
T, A
Level 9
£9.90/£11.50

You are Kim Kimberley, in deep freeze aboard a colonist ship en-route to Eridani. The computer is programmed to wake you only if something has gone wrong – and something just has.

An adventure full of atmosphere, in which the first major obstacle is to survive the Nightingales – deadly black things with deadly hypodermics. Eventually you will come across Woldroids, lances, and a snowdozer. In your attempt to rectify the problem.

SORCEROR OF CLAYMORGUE CASTLE
G, A
Aventure International
£9.95/£13.95

Not as grisly as the title suggests, but the most difficult of Scott Adams' adventures bar Savage Island Part 2, and the most satisfying and enjoyable to play.

Your task is to gather STARs using spells with everyday names but unkown purposes. Solve a problem, and it will come bouncing back, asking to be solved again a different way! And if only you could find a place to store those damned stars, so that you could rate a score!

SORCERY
A/A, I
Virgin
£7.95

Conquer Stonehenge to set the world free from evil curses in this arcade adventure controlled by joystick. Press the button to pick things up, and tilt the stick to move.

SPIDERMAN
G, I
Adventure International
£9 95/£13 95

The second Questprobe adventure [see Hulk] this one introduces many of the Marvel villains.

Can you separate the biogem and energy egg this time? And can you find enough paper to start a print-run of the Daily Bugle? Hydroman Ringmaster Mysterio and many others are all there to make these tasks difficult

STAINLESS STEEL RAT SAVES THE WORLD
G, I
Mosaic Publishing
£9 95

Making a time helix is one of the less difficult tasks confronting the adventurer – it's operating it effectively that counts!

Complete with the book by Harry Harrison Shards have programmed this adventure that takes you into alternative worlds Ever visited a Paris with three Eiffel Towers? Or seen the tricolour flying over St Pauls? Now's your chance!

STARCROSS
T, A
From Infocom, distributed by Commodore
£11 99

Aboard the deep-space prospector Starcross an alarm sounds and you rush from your bunk to the bridge. The year is 2166 and in search of energy yielding black holes, you come across an alien ship

Exploration of the alien ship is the major part of this game, and you find some aliens helpful, others downright nasty!

One of the Infocom games offered by Commodore at a bargain [reasonable] price.

STRANDED
G, I
English Software
£7.95

Marooned on a strange planet is the scenario for this difficult-to-make-sense-of adventure, that understands some words in some places but not others

The graphics aren't bad but the game is dreadful

SUSPENDED
T, A
Infocom, distributed by Commodore
£9 99

The three master computers which control the planet's weather, food production, and transportation system have broken down, and you have been awoken from a cryogenic sleep to do the job yourself, whilst you arrange for repairs.

Six maintenance robots, each with its own personality, are there to aid you. You will need to use the board supplied to keep track of their whereabouts

TELENGARD
AnA, I
Eclipse
£7.95

An Avalon Hill dungeons and dragons role-playing fantasy, full of spells, potions and the like. Move from level to level using single key commands.

You can play singly or between two or more players. But you have to be fast to act and good at speed reading to take in the text.

TEN LITTLE INDIANS
G, I
Channel 8
£6 95

Collect 10 worthless figurines to learn the whereabouts of the valuable gold figurine commissioned by Major Johnstone-Smythe before his death

Plenty of puzzles to solve en-route to the completion of this Mysterious Adventure.

TIME MACHINE
G, I
Channel 8
£6 95

Lost on the moors in a mist, you stumble upon a lonely house and discover a strange device in the cellar. The owner, a scientist, is missing. His latest invention, the time machine you are now confronting, has parts missing which must be found and restored to allow you to operate the machine accurately to effect a rescue. In so doing, you will visit other ages.

TIME TRAVELLER
G, I
Audiogenic
£5 95

The evil Graf von Schwarzherzen has been at it again: this time making off with a magical hourglass, controlling the domain of time. You wake up on a space ship in 1990 and gradually your mission, involving travelling in both past and future, becomes clear

TOMBS OF XEIOPS
T, B
Romik
£6 99

Set in the Egyptian desert you have to enter the tombs and search for treasures within. Although given beginners status, there is a very difficult problem early on in the game, which few players survive. Sudden and unexpected death do not help to contribute to the game, which can only be described as mildly boring.

TRANSYLVANIAN TOWER
AnA, B
Richard Shepherd
£6 50/£9 50

Although advertised as one, this is not really a true adventure game. It consists of a bat ridden tower which you must traverse, zapping bats and other nasties in your quest

TWIN KINGDOM VALLEY
G, I
Bug-Byte
£9 50

Explore the mountains, valleys and caves of the valley ruled by two Kings who hate each other. There are plenty of puzzles in this game including the notorious how-to-kill-the-dragon problem.

A very popular game, in which the Commodore graphics show up those of the BBC version

UNORTHODOX ENGINEERS: THE PEN & THE DARK
T, I
Mosaic Publishing
£9 95

A mysterious and impenetrable black column has appeared on the planet Ithica, devastating its capital city Bethlem.

As Fritz Van Noon, you head your team of Unorthodox Engineers in discovering the origins and secrets of the phenomenon, in the Sci-Fi adventure. The short story by Colin Kapp is included in the package.

URBAN UPSTART
G, I
Richard Shepherd
£8 50/£9 50

Escaping the queues for the dole queues in Scarthorpe is the theme in the modern day satire on a seedy declining northern town in Thatcher's Britain.

Wording of commands can be a little difficult, but the plot is quite original

VALHALLA
AnA, A
Legend
£14 95

Animated graphic adventure, with a strong flavour of Norse mythology, in which all the characters wander around the screen doing their own thing. Your commands are entered in

text below the stage.

The object is to find the five quest objects which must be done in a certain order.

VOODOO CASTLE
G, I
Adventure International
£8.95/£13.95

One of Scott's series written by his wife Alexis, in which you must lift the curse on Count Cristo by enacting some voodoo mumbo-jumbo around his coffin. Before you reach this grande finale you must solve numerous problems, including how to get through a narrow crack and how to lift a ju-ju bag. What is the purpose of the medium Megan and the raven?

WAXWORKS
G, I
Channel 9
£9.95

Locked in a waxworks after closing time, you must find your way out. You meet up with Guy Fawkes and Jacques Cousteau amongst other characters and your ability to answer questions about the exhibits may be to your advantage later in the game.

WITNESS
T, A
Infocom, distributed by Commodore
£11.99

Another lengthy textual saga from the Infocom stable.

WIZARD OF AKYRZ
G, A
Channel 9
£9.95

Having been twice thwarted in his plans for the Golden Baton, the evil wizard takes on an earthly form to lure the mortal responsible into a snare from which there is no escape.

ZIM SALA BIM
An, B
Melbourne House
£9.95

A scrolling 3D adventure, where you play the part of the only able-bodied man left in your village after a raid. You must enter the Sultan's palace bedroom to recover the lost gold.

Text and joystick controls are used to solve this game, with a keyboard option for those without joystick.

ZORAKK
G, I
Icon Software
£7.95

The long lost crown of Ultimate Darkness is the quest object in this journey through the medieval lands of Ramagore. Battles, plagues and famine are among the problems that beset you in pursuit of your goal.

ZORK 1
T, A
Infocom, distributed by Commodore
£11.99

The first in the Zork trilogy, this massive text adventure is based on the original mainframe Decus Dungeon. In Zork 1 you will be confronted with a murderous troll and have to solve the riddles of Flood Control Dam No 2, a mine, and a jewel encrusted egg, amongst others.

Full of humour, with a strong background of the history of the Great Underground Empire, now extinct, but once ruled by the great Lord Dimwit Flathead the Excessive.

ZORK 2
T, A
Infocom, distributed by Commodore
£11.99

In the second Zork saga, you meet up with the somewhat incompetent Wizard of Frobozz and among the more difficult tasks are the recovering of treasure from the Great Bank of Zork climbing up a well, balloon flying and rescuing a poor maiden imprisoned by a dragon.

ZORK 3
T, A
Infocom, distributed by Commodore.
£11.99

The Grand finale of Zork, where the accent is upon learning to become the Dungeon Master. Here you may enter the technology museum and play about with strange machines, and with some cunning steal the famous Flathead crown jewels.

Who knows you might even meet Lord F himself!

FOR THE VIC

Dark Dungeons
Aarog
£5.95

Graphic adventure that needs 16K expansion. Dungeons monsters, treasures – tries to recreate some of the role-playing and other qualities of the original Dungeons and Dragons classic.

Detective
Argus
£6.99

Text and graphic adventure that needs 16K. You're a detective confronted with a dead body who must sleuth around for the murderers. But the baddies are after you!

Oracle/Lost in the Dark
Anirog
£5.95

Graphic adventure for the unexpanded Vic – a different game on either side of the tape.

Demon Knight
Argus
£6.99

Mixture of graphics and text for Vic with 16K.

Four Gates to Freedom
Phoenix
£7.99

Bit of an oddity for the Vic. This game has an arcade section and an adventure which depend on each other for a solution. It needs 32K expansion.

Gold Rush
Mr Micro
£5.99

Graphic adventure for the unexpanded Vic – better than going to the Klondyke.

Golden Apples of Zeus
Romik
£4.99

16K text adventure suitable for the beginner with leanings towards mythology. Excellent on-screen instructions on how to play adventures and a save facility.

Heroraiser
Heresoft
£7.99

16K text and graphic adventure. The infamous prize-game in which you 'could' win a jewelled hare or lots of money. Official game-of-the-book by Kit Williams.

Magic Mirror
Terminal
£5.99

8K text-only adventure – very reflective.

Mines of Saturn/Return to Earth
Mikro-Gen
£9.99

Two games on one tape. Both are text adventures for the 8K expanded Vic. In Mines of Saturn you have to set up a mining colony on a distant planet.

Mission Impossible
Commodore
£4.99

Another in the Scott Adams adventure series – regarded as one of the guru's toughest games.

Mysterious Island
Mr Micro
£5.99

16K graphic adventure.

Pharoah's Curse
Heewere
£9.99

Outstanding example of the arcade/adventure style game. Fast and furious action in various sections of Pharoah's tomb. Excellent graphics and sound.

Pharoah's Tomb
Anirog
£5.95

16K graphic adventure in which your character wanders through the tomb – unfortunately the progress is painfully slow. Regarded as more of an arcade game than a genuine adventure.

Pirate Cove
Commodore
£4.99

Another Scott Adams offering in which your aim is to try and find the gold on Treasure Island.

Quest of Merravid
Mortech
£5.99

16K text adventure. Seek the magical firestone hidden by a dragon. Short adventure, not difficult to solve with some signs of humour. Recognised as a classic.

Rescue at Rigel
Maplin/Epyx
£5.99

A really mysterious adventure in which you're never quite sure what's going on. American imported graphic adventure for 16K Vic.

Rescue from Castle Dread
Termisel
£5.99

16K text adventure.

Sword of Hrakel
Romik
£4.99

Your village has been depopulated by the curse of the evil Mage. You must find and kill him, and lift the curse to return your people. Highly recommended text adventure for the dedicated buff. Will run on either 3K or 8K expansion – this one's got a sense of humour.

The Count
Commodore
£4.99

Scott Adams text adventure – perhaps the most difficult in the series to solve. Not surprisingly, the count in question is Dracula – sleep too much and you'll wake up with some very nasty bites.

The Curse of the Werewolf
Terminal
£9.99

Graphic adventure that needs 16K expansion. Clever little number this: attacking monsters do not always kill you but weaken your constitution as you struggle to get past them. Random placing of objects so that each game is different.

The Dungeons
Anirog
£5.95

16K graphic adventure – another computerised variation on the classic Dungeons and Dragons game. Lacks the problem-solving features of some adventures but it's nonetheless challenging.

The Valley
Argus
£9.99

Graphic and text adventure which needs 16K expansion.

Tomb of Drewen
Audiogenic
£12.99

16K graphic adventure in which your character meanders through the 400 chambers of the Tomb. Choose your weapons carefully because the guards you encounter have different strengths. The idea is to search for magical runestones and an amulet.

Trader
Quicksilva
£5.99

Science fiction adventure that loads in three 16K parts. Your character wheels and deals with various inter-planetary traders both to survive and make a few bucks before the game is over. Good use of graphics. More of a strategy game than a genuine adventure.

Voodoo Castle
Commodore
£4.99

That man Scott Adams again – this time delving into Black Magic (not the chocolates).

White Sorrows
Argus
£5.99

This one needs 16K graphic and text adventure.

Wizard and Princess
Melbourne House
£5.99

One of the rare graphic adventures for the unexpanded Vic which has been a best-seller for some time. It's in five parts, with each section loading separately. You must find a castle, kill a dragon and finally rescue the princess.

Zok's Kingdom
Anirog
£5.95

16K graphic adventure in which your character wanders around chambers avoiding monsters. You must find the right equipment to proceed through the chambers.

BUSINESS

Most packages listed below are for the Commodore 64, with a few on the Vic. Pet software is not generally covered, except where the same or similar packages are available.

With word processors, users generally want to know whether it is pre-formatted (what you see on the screen is what you get on print-out), which is difficult with a 40-column screen, or post-formatted, and the amount of text memory it can handle. Linked files enable

longer documents than can be held in memory to be printed out.

With databases, the significant questions are how many records to a file, how many fields to a record, how many characters to a record or field, how fast can records be accessed?

With spreadsheets, very large numbers of cells, organised in rows and columns, may be offset by slowness of access.

Accounts packages present special problems in summarising their facilities, since those that fit in with classic accounts procedure may be hard for the untutored to operate, and the easier packages may not satisfy accountants or the Inland Revenue or HM Customs & Excise.

FOR THE 64

WORDPROCESSORS

EasyScript
Commodore
£75

Cut-down version of very powerful Superscript package for Commodore 8000 series. Post-formatted program with text memory of 764 lines by 40 characters with a maximum page width of 240 characters. Editing facilities, documentation and error message provision are all good. Includes mail-merge and view-to-screen facility for those who like to see what they're getting. Also available is Easy Spell spelling checker for £50.

HESwriter
Thorn EMI Computer Software
£29 99

Reasonably priced cartridge-based package with good documentation and post-format presentation. Has view-to-screen, fast searching for character strings and file-linking for preparation of long documents.

Simply Write
Strapte Software
£48 (disk)
£40 (tape)

Features 250 lins by 80 character text memory. Fairly good editing facilities and documentation. But written in Basic, it's a rather cumber some program which boa no search or replace facility.

TDTL Text 2 6
Thorn EMI Computer Software
£53 95

Post-formatted screen display. Also available is a spelling checker (£1 95) which can be used with most other WP packages. There's also a mail-merge program for £29 95.

Vizawrite
Viza Software
£79 95 (disk and cart)

Pre-formatted screen display, 425 lines by 80 character text memory and maximum page width of 240 characters. Good editing facilities and documentation. Combination of Vizawrite and Vizastar available for £99.

The Word
Impex Designs
£224 25

Package is expensive because it incorporates the Video Pak 80 80-column card which requires a monochrome monitor to be readable. Post-formatted but has a view-to-screen facility. Maximum page width is 250 columns. Also includes Mail Merge and Inquire Pac a simple database: 200 records per file, 255 characters per record spread over 15 fields.

Wordcraft 40
Audiogenic
£24 95 (disk)
£99 95 (cart)

A small' program that is in many ways superior to its big brother. Pre formatted screen with wraparound, text memory of 332 lines by 80 characters, maximum page width of 99 characters and complex print options. Includes error messages and good documentation.

Wordcraft 64
Dataview Wordcraft
£49.95

Original version by inventors of the package. Pre-formatted wraparound package with 143 lines by 80 character text memory, max page width of 117 characters, on-screen error messages, good editing facilities and excellent documentation. Supports wide variety of printers. Supplied with dongle that fits into joystick port.

Wordmanager
Impex Designs
£99 99

Has optional 80-column card costing a further £45 – again you'll need a monochrome monitor to use the 80-column facility successfully. Pre-formatted display, text memory of 330 lines by 80 characters, on-screen error messages, good editing facilities and good documentation. Includes mail-merge and 64 Calc, a simpled 1100 cell spreadsheet.

Wordpro 3 Plus
Wego Computers
High Street,
Caterham, Surrey
£89

Probably the best know post-formatted program and still one of the best. One of the few programs to have a mathematical capability, although confined to add and subtract. Text memory of 329 lines by 40 characters maximum 165 printed character width, good on-screen error messages and documentation but no block save routine. Will read files created on Paperchip.

Word Wizard
Bubble Bus
£5 99

Probably the cheapest introduction to WP, but has a restricted 3520 character memory (probably wastes the power of the 64) and only eight editing commands. Text memory is 88 lines by 40 characters. Documentation is fair.

FOR THE VIC

Vicwriter
Coramodore
£19 95 (tape)
£24 95 (disk)

Pre formatted 80 character maximum page width, good documentation and fair editing facilities. Typed material displayed one line at a time with side to side scrolling during typing. Needs 8 or 16K expansion.

Wordcraft 20
Audiogenic
£24 95

A small' program that is in many ways superior to its big brother. Pre-formatted screen with wraparound, text memory of 332 lines by 80 characters maximum page width of 99 characters and complex print options. Includes error messages and good documentation.

DATABASES FOR THE 64

Database
Gemini Marketing
£19 95 (tape)
£24 95 (disk)

Low-cost file managing package from the company that produces a range of accounting software for the 64. Also available is Mailist £19 95 on tape and £24 95 on disk.

Database 64
Hendic Software
around £70

Although supplies from Scandinavia have not yet arrived at time of writing the spec shows it to have a one second search time per record. Will hold up to 3800 records on disk. 254 characters per record organised into 18 fields with 27 characters per field. Will sort any field or combination of two. Should run any Commodore printer

DFM
Dialog Software
£30

Fairly fast program as it works within memory but a new version in the pipeline that will use random access disk files not constrained by memory. Fairly easy to use with average documentation

Easy File
Commodore
£50

Records up to 500 characters, available over two screens with maximum field size of 40 characters. Three levels of password operation ascending or descending sort using up to three keys. Report generation to screen disk or printer. Accessible to Easy Script

Figaro
Saxoo Computing
3 St Catherine's Drive
Leconfield, Beverley
Humberside
£96.25

Unique numeric database with powerful graphics function. Graphics capability includes bar line mixed bar and line multiple bar and cluster bar charts. Manual is rather inaccessible, though, but it does give worked examples

Infodisk
Beaver Software
Stathere,
Melton Mowbray,
Leics. LE14 4HJ
£74.75

Good upgrade from Infotape (whose files it can read), with variable-length records max 80 characters per field nine screen pages per record with very sophisticated calculator functions

Infotape 64
Beaver Software
Stathere,
Melton Mowbray
Leics. LE14 4HJ
£16.95

File size depends on record length but maximum 3000 number of records. Has report generator with five printing formats, search function and 19 calculator functions

Micro Magpie
Audiogenic
£39.95 (disk)
£99.95 (cart)

Cartridge version was excellent value, now the new disk version is better still. Driven by pop-up menus making it easy for the beginner. Can also be programmed. Unfortunately some facilities like search can only be used if a procedure is written. Still recommended.

Practifile
Practicorp
£44.50

Medium-power database allowing 254 records 20 fields per record 75 characters per field. Number or records depends on file size but could be as many as 3670. Sequential files option allows links with WP programs. Will also link to Practicalc – and the manual tells you how

Simply File
Simple Software
£69

Written mainly in Basic so parameters can be redefined. Apparently the CEGB uses this program with 53 fields. Any field can be made a key for search – field size is 78 characters maximum. Maximum record size (limited by disk) is around 800. Also available for the Commodore 8000

Superbase
Precision Software
£100

Very powerful programmable information retrieval utility. Up to 1198 character record size with 127 fields and max field length of 255 characters four screens per record help screen editing capability plus very powerful programming language. Also available are Stepping Stones templates and Home applications. Needs careful study to get the most out of it but the effort is worthwhile

TOTL Infomaster 64
Thorn EMI Computer Software
£59.95

Up to 10 files per disk up to 2500 per record with max 100 fields (245 characters per field). Records limited only by disk size. Can be used to generate labels

FOR THE VIC

DFM
Dialog Software
£30

Costs only £24 without mail-merge facility. Fairly fast program as it works within memory but a new version in the pipeline that will use random access disk files not constrained by memory. Fairly easy to use with average documentation

SPREADSHEETS

Autocalc 64
Richard Shepherd Software
£14.95 (tape)
£19.95 (disk)

Has maximum 255 cells both horizontally and vertically – better than the sketchy manual would have you believe. For example it permits use of IF–THEN conditional functions in formulae, sometimes lacking in more powerful spreadsheets. Lack of documented information on printers but will support Commodore and Seikosha

Busicalc 3
Supersoft
£75

Maximum 2000 cells horizontal/vertical (399 max on sheet). No-nonsense application, worth upgrading to if you have either Busicalcs 1 or 2. File structure is quite accessible so portability should be no problem. Disk contains a 'news' program for latest update info. Manual could be improved. Will support Commodore and Centronics printers. Easy to use with good mnemonics. Also available for CBM 4000/8000

Calc Result
Handic Software
£99

Maximum 63 cells horizontal and 254 vertical. Easy to use, with good documentation and help-screens on disk. This is an excellent 3D sheet allowing over 30 sheets to be linked together with the final one totalling all the tables in the preceeding sheet. Also four sheets can be displayed simultaneously in separate windows on screen. Easy version, accessing only one sheet at a time, available at £48.95. Supports Commodore and Centronics printers. Also available for the CBM 8000

Micro Swift
Audiogenic
£19.95

Maximum 28 cells horizontal and 254 vertical. Good and fairly powerful package thanks to the unique pull-down menu system Audiogenic pioneered with Magpie – but it slows you up until you're accustomed to it. Manual is brief, clear and to the point. Gives example sheets in program and error messages on screen. Supports Commodore and Centronics printers. Despite the cheap packaging this is a sophisticated product. Recommended

Multiplan
Thorn EMI Computer Software
£95

Maximum 63 cells horizontal by 256 vertical. Superb documentation on-screen error messages, help screens but difficult to adapt to new printers. Still this is probably the best spreadsheet around at the moment. Not as fast as the CP/M version since RAM restriction makes it access disk frequently. Up to eight windows can be created on the screen at a time, though they all have to be from the same sheet.

Practicalc Plus
Practicorp
£39.95 (tape)
£44.50 (disk)

Maximum 100 cells horizontal by 250 vertical. Supports only Commodore printers (1515, 1525). Reasonably priced and quite powerful sheet. Has option of hi- and lo-res bargraph creation, sorting and 22 mathematical functions. Documentation is good but there are no example sheets in the program.

PS
Practicorp
£69.95

Main plus is that this sheet can be programmed in Basic. There are 12 possible program modules including such facilities as help screens, disk directory, prompts for data entry on disk. Maximum 2000 cells both ways but only 50 by 40 per sheet. Supports only Commodore printers. Reasonably-powered sheet which produces sequential files that enables some portability. Excellent manual.

Practicalc II
Practicorp
£69.95

Maximum 100 cells horizontal by 250 vertical. A truely integrated package that uses its ability to display the contents of cells of up to 100 characters wide as a 'long-label' to incorporate a mini-wordprocessor. There's also a database which means it can sort alpha and numerically. Spreadsheet can access files from database since it can handle sequential ASCII files. It can of course read Practicalc and Practifile files (but there's no specific information on how to do this). Good manual (written for Apple but there's a 64 supplement) with example sheets on the program.

Spreadsheet Calculator
Kuma Computers
£14.99

Probably the cheapest 64 spreadsheet around. Maximum 26 cells horizontal and 50 vertical. Simple budget-priced sheet linking Kuma's accounts programs. Totals, sub-totals and formulae are all in different colours to aid reading.

Vizastar
Viza Software
£99.25

Described as an information-processor. It combines spreadsheet, database and graphics (probably better than Lotus 1-2-3). Number of records per file only limited by disk size. Sheet has maximum 64 cells horizontal by 999 vertical and it's programmable. Real plus is its speed. Available with 4 or 8K cartridge and with graphic enhancement for pie and bar charts. Poor manual is being rewritten. Supports Commodore and Centronics/Epson printers. Highly recommended.

Practicalc Plus
Practicorp
£19.95 (tape)
£24.50 (disk)

Little difference to 64 version (above) except that the vertical number of cells are restricted to 200.

Cashbook Accounting
Gemini Marketing
£59.95 (tape)
£64.95 (disk)

Powerful book-keeping program but manual is rather impenetrable for those new to accounts. Worth persevering, though, as it's one of the best around. Includes VAT analysis program for £19.95 (tape) and £24.95 (disk). But it will not calculate VAT on each invoice – probably because VAT is subject to change. Integrates with identically priced Final Accounts program.

Easystock
Commodore
£75

Up to 16 fields for each stock record, including description, location, reorder level, tax rate, gross profit margin and accumulative sales/purchase totals. Generates reports on stock levels, analysis of sales (weekly or annually) and stock valuation reports.

Invostat
Dialog Software
£30

A good invoice generator, links with the same company's Transact package.

Micro-Simplex
Micro-Simplex
8 Charlotte St West
Macclesfield, Cheshire
£172.50

Excellent general purpose package although particularly good for retailers using VAT schemes A to F. Apparently used by actor Ian Lavender. Very good seller.

Purchase Ledger
Anagram Systems
£75

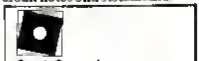
Adapted from popular Anagram package for Commodore 8000 series. Accesses supplier account files using names not numbers, maintained and operated on a monthly cycle with paid invoices being deleted and outstanding accounts remaining on file until cleared. Prints remittance advice notes and a wide range of reports and balances.

Sales/Purchase Ledger
Systematics International
£99

Cash flow, daily book-keeping including automatic production of VAT stats, customer records, suppliers' accounts, aged debtors and creditors analysis, statements and remittance advice notes. Fully password-protected.

Sales Ledger
Anagram Systems
£75

Again adapted from popular program for Commodore 8000 series. Accesses customer accounts files through name not number. Paid invoices are deleted with outstanding accounts remaining on file until cleared. Prints invoices, credit notes and statements.



Stock Control
Anagram Systems
£75

Adapted from famous 8000 series package. Accesses up to 350 stock items per disk, each referred to by a 10-letter code.

Stock Control
Gemini Marketing
£19.95 (tape)
£24.95 (disk)

Up to 230 stock records may be held on each file. Sophisticated machine-code program with several printer options.

Stock Control/Invoices
Systematics International
£89

Newly-released double program. Handles 100 stock items integrating with invoice mod

ACCOUNT PACKAGES

ule for invoice generation and stock control. Handles up to 400 suppliers, 750 supplier transactions and 750 customer transactions. VAT is fully supported. Fully password protected.

Transact
Dialog Software
£30

Friendly, easy-to-learn program. Probably not the best but the easiest for the non-financial user. Works with Investat (see above) making it a rather expensive but useful package at £60.

Vic Stock Control
Commodore
£19.95

Suite of three programs that handle up to 750 separate items.

PROGRAMING

ASSEMBLER

Assembler is the most direct way of programming apart from writing in actual binary notation, and is very much quicker than Basic in execution. Assembler uses mnemonics which are decoded (assembled) by a special program (the assembler) into machine-code. Assemblers are always specific to the processor chip on which they run. Commodore machines run 6502 (Vic) and 6510 (64) assembly language, which are virtually identical. Both have an identical set of 56 microprocessor instructions, each having a variety of addressing modes.

FOR THE 64

Assembler 64
Intercogtor
£7

Probably the cheapest 64 assembler available. It's a three-pass assembler which assembles directly into memory. There's no option for saving the object code. Source programs are produced and edited like Basic programs. But it imposes a few deviations from standard 6502 mnemonics. Very cheap but very meagre on instructions.

Dr Watson's Beginner's Assembly Language
Honeyfold Software
£12.95

Not just an assembler but a tutor. The package includes a well-documented 240-page book covering the whole spectrum of machine code and the 6502 instruction set. A number of examples and exercises are included. The assembler itself is of the 'continuous' type – source code is not converted into object code. Although it includes an advanced 'macro' feature, the assembler is more suited to the novice.

Mikro
Supersoft
£50

Cartridge-based quick but expensive three-pass assembler and monitor. Monitor has commands for searching, moving and disassembling machine-code. Assembler accepts standard 6502 mnemonics and pseudo-ops. Code cleverly generated by writing into the RAM beneath the Kernal ROMs and I/O chips so that, when the code is complete, it is copied into your specific area. One omission: 'renumber' is not included as command.

Monitor
Audiogenic
£29.95

Machine-code monitor giving sixteen commands for the entering, examining and modifying of machine code. It accepts standard 6502 mnemonics, addressing notation and hexadecimal operands. Also has command allowing user port to be configured to run a Centronics printer. Aimed at the experienced user, a little poor in documentation.

Disirsen 64
Elmhurst Enterprises
99 Porchester Road
Hucclecote, Glos
£17.99 (case),
£19.95 (disk)

Contains two machine-code programs. FREDIT is a full-screen scrollable text editor using a comprehensive set of commands to create the source code. ASM then converts it into machine code. A good value professional product, the only significant ommission being that you can't relocated code to a different address. Elmhirst is working on a new product that should incorporate substantial improvements. Upgrade available for disk.

FOR THE 64

Zeus 64 Design Design
£9.98

Combined monitor and assembler – the monitor gives nineteen single-letter commands. The assembler creates source files in Basic-like lines, allows tokenising of mnemonics and allows numbers to be expressed in either decimal, hex or binary. Lots of features and low price makes Zeus an attractive buy.

FOR THE VIC

Denisen
Elmhirst Entergrises (see above)
£17.95 (case),
£19.95 (disk)

For Vic with 8K expansion. See above for details.

Mikro
Supersoft
£60

As above except that the Vic version is not just an assembler. It contains commands for graphics, sound and for joysticks.

EXTENSIONS TO BASIC

Commodore Basic for the Vic and 64 is notoriously lacking in useful commands for manipulating graphics and sound, and for providing facilities to make your programming more fun and easier. So a package that provides these much required extra commands looks like being a good idea – that's why there's so many around.

FOR THE 64

Aces+
Melbourne House
£8.95
Available from:
Castle Yard House,
Castle Yard,
Richmond,
TW10 6TF

Contains a collection of 30 advanced Basic commands allowing features of the 64 normally only accessible using machine code or tedious PEEKing and POKEing to be easily included in your own programs. These include Graphics, Sound and Utility commands and a fast operation cassette system claimed to make the cassette as convenient as the disk drive.

BC Basic
BC Computers
£16.98 (Case)
£18.98 (Disk)
£44.95 (Cart)
Available from:
C W Computers,
(Freegent),
Derby, DE3 9BR

Over 67 new or modified commands have been added, which can be entered in full or abbreviated forms, covering hi-res graphics, sprites, sound, machine code aids and structured programming. All commands have not been fully tokenised so speed of operation is not effected. Supplied with an easy to follow 56 page manual.

Basic Lightning
Oasis Software
£14.95 (case)
£16.95 (Disk)
Available from
9a Alexandra Parade,
Weston-super-Mare,
Avon, BS23 1QT.

A fully structured extension to Commodore Basic which adds 200 reserved words allowing up to 5 tasks to run concurrently. The package includes a sprite creation program. Up to 255 software sprites can be defined with user-selectable dimensions. Sprites can be scrolled, spun, mirrored, enlarged or inverted.

Beginners Basic
Honeyfold Software
£14.95
Widely Available

Sold as part of the Dr Watson Computer Learning Series, which comprises a paperback textbook supported by software on cassette, Beginners Basic also includes Honey Aid. This is a toolkit/graphics/sound utility that adds 28 new commands to Commodore Basic. The full implementation of Honey Aid which will comprise of 120 functions and commands will hopefully be available on disk in early 1985.

David's Basic
Commodore User
£27.50

With almost 50 extra commands this package concerns itself with the general deficiency of Commodore Basic compared to more 'modern' dialects of Basic. Manipulation of numbers and strings are well catered for and the inclusion of easy to understand printer commands is most welcomed. The package is commissioned from Whitby Computers by Commodore User.

Graphix 64
Supersoft
£10.00 (Case)
£12.00 (Disk)
Available from:
Winchester House
Canning Road,
Wealdstone, Harrow,
Middlesex, HA3 7SJ.

This utility has some 33 commands for making the most of the 64's bi-res graphics and sprites. Each Basic type command is prefaced by the '@' sign or called directly using a SYS call. The utility can easily be called from within your own program and full instructions are given on how this can be achieved.

Help C64
Stack
£26.00
Available from
260-268 Derby Road,
Bootle, Liverpool L20 8LN

This cartridge utility comprises 20 additional commands. These are mainly toolkit commands useful during program development. Commands such as Auto line numbering, a Trace facility to debug a program and an Append command to merge two separate programs. Other commands include disk operating system support, a machine code monitor and disassembler and printer commands.

Master 64
Calco Software
£115.00
Available from:
Lakeside House,
Kingston Hell,
Surrey, KT2 7QT

More a complete program development package rather than an extension to Basic. Supports 65 new commands as well as Basic IV and programmers Toolkit. Machine code monitor, Business Basic, Keyed Disk access and data compression. Multiple screens, 22-place arithmetic and many other features are also included. Turns the 64 into a professional program development tool.

Simon's Basic
Commodore
£50.00
Widely available.

Adds an extra 114 commands to standard Basic. Main areas of emphasis are tool kit utilities, graphics and an attempt at structured programming. One of the first Basic extension packages and although comprehensive, thought by many to have been a missed opportunity for Commodore in making up for the deficiencies in the 64's outdated resident Basic.

Softchip
Whitby Computers
£34.95
Available from
6 Chubb Hill Road,
Whitby, N. Yorkshire

This is a cartridge utility where you choose the extra commands you think you will find the most useful. With over a 100 different commands to choose from the only limitation is that your choice does not exceed 7100 Bytes. Commands range from 'Auto' line numbering to a comprehensive sprite editor and Basic 4 disk commands.

Turbo Extended Basic
Aztec Software
£14.66
Widely Available

Adds 45 extra commands covering sprites, graphics and utilities. Comes with an adequate 22 page instruction manual. Similar to ACOS+ (from Melbourne House) but without fast tape utility. Package compares favourably on the utilities front but suffers in the areas of graphic and sound support.

Ultrabasic-64
Adamsoft
£14.95 (Cass)
£16.95 (Disk)
Widely Available

Adds 50 commands to standard Basic. These cover the much needed areas of support, graphics and sound. The games player is not neglected as there is a dedicated joystick command and sprites are fully supported. Package comes with comprehensive manual, a two part online tutorial and demonstration programs.

Vidas Basic 64
Adamsoft
£42.00
Available from
16 Norwich Avenue,
Rochdale, Lancs. OL11 5JZ

Unlike many basic packages you can produce a runtime version of your programming expertise which you can then distribute without paying any royalties. Graphics and sound are well catered for and so are games programmers with direct control of inputs from lightpen, joystick or paddle. Also hardcopy in two sizes to popular printers.

FOR THE VIC

VIC 20
Basic Plus
Tramiver Ltd.
£22.50
Available from:
93a Pack Lane,
Basingstoke, Hants.

Adds 19 additional commands including Auto line numbering, Renumbering, Edit, Block, delete, Insert, Dump, Retrieve, Set Border and paper colour, and Sound control. It also includes a modified reset facility. Available in ROM at £24.95 for use in the Vixen Motherboard. A useful programming aid for the Vic 20.

COMAL

Comal was once thought of as a serious contender to Basic because it is easy to learn yet structured and therefore able to produce more understandable program listings. Comal was extensively developed in the '70s and reached a standard in 1982. The first commercial implementation for the

Commodore 64 should be available soon on cartridge. In the meantime, public-domain Comal can be acquired free of charge. See below.

Comal
Unicomal Denmark APS
Christiansholmsgrade,
DK 9700
Horsens, Denmark
approx £50

Apparently, the cartridge is nearing completion but is not yet available at time of writing. When it does arrive it will have inbuilt commands to control graphics and sprite facilities.

Public-domain Comal
Brian Grainger
73 Minehead Way
Stevenage, Herts.
SG1 2HZ

A public-domain version of Comal can be obtained free of charge from Brian Grainger of ICPUG at the above address but disk-only copies are available. Send a formatted disk with appropriate return postage to the above address.

FORTH

Like Basic, Forth is a high level programming language. But unlike Basic, it is not interpreted or 'run-time', but compiled, so execution of the program is much quicker because it doesn't need to interpret line by line as it goes. Debugging and highlighting of compilation errors is also easier.

Forth is a structured language, its code being built up from the lowest to the hightest level. This 'top-down' approach and the use of Reverse Polish Notation gives the language its back-to-front look. Forth can approach the speed of machine-code.

FOR THE 64

Tiny-Forth
Adamsoft
£12.95 (case),
£14.95 (disk)

The 64 version contains most of the elements of the fig-Forth but not a standard implementation. A 45-page manual is included. Probably the cheapest Forth you can buy.

64-Forth
Audiogenic
£39.95

Expensive yet user-friendly implementation. Again it doesn't conform precisely to the fig-Forth standard but a good version for the beginner.

FIG-Forth
Romik Software
£14.95

An attempt to implement faithfully the fig-Forth standard on to tape for the 64, not difficult to use and reasonably good for the beginner. But the manual is disappointingly slow. The tape is also slow and cumbersome, but Romik says a disk version will soon be available.

Tiny-Forth
Adamsoft
£12.95 (case),
£14.99 (disk)

See above – the Vic version needs 8K to run.

Vic-forth
Audiogenic
£24.95/£39.99

The cartridge comes in two forms, the cheapest being the standard version, but you'll need at least 8K RAM expansion to make it work. For the extra £15 you get 3K expansion built into the cartridge. Audiogenic Forth is user-friendly but not a standard implementation. A little pricey but good for beginners.

Vic-Forth
Handic Software
£34.99

Nearly a fig-Forth implementation but adapted for the Vic memory map. The cartridge comes complete with 3K expansion. Unlike the 64 version, this one does not include the editor and assembler. You'll really need a disk to get full benefit from this product.

PASCAL

Pascal is probably the most popular programming language next to Basic but its use is confined more to business and professional software. It's a compiled language which means it produces an object code (code which the computer actually understands) from the source code. So it runs much faster than an interpreted language like Basic. Pascal has been described as an 'elegant' language because it lends itself to structured programming techniques. It is available only for the 64.

Oxford Pascal
Oxford Computer Systems
£14,95 (case),
£49.95 (disk)

The only Pascal compiler we've heard of for the 64, and it seems to be a complete implementation. Both the cassette and disk versions feature a text editor, extra graphics and sound commands. The much cheaper cassette version features a resident compiler which takes up 16K of memory, this restricting program space. The disk version does not suffer from this problem and can create source files limited only by the 64's memory.

GRAPHICS PACKAGES

FOR THE 64

Art Master
Commodore
£9.99 (Case & Disk)
Widely Available

Art Master give you a range of 121 colour shades to choose from and with the aid of a joystick or the computer keyboard you can compose your hi-res masterpieces which can be easily stored and recalled from cassette or disk. The program is sold under the name of 'Tony Hart Art Master' which might help to decide whether this is the right graphics package for you.

Doodle
Quicksilva
£14.99
Widely Available

Its name might suggest a graphics package ideally suited to the under-fives however here are several novel facilities available which make this program stand out from the rest. One of these is the 'ZOOM' facility whereby a particular area of the graphics screen can be temporarily magnified for intricate design work.

Easysprite 64
Marathon Software
£9.99
Available from:
49 Netherlands Avenue,
Bradford, W. Yorkshire

This is an interrupt driven machine code utility which enables the 64's eight sprites to be manipulated in a variety of ways. By presetting certain parameters for each sprite, control is totally independent of the main program. Package includes demo routines and full instructions.

Gashit 64
Aanog
£14.99
Widely available

A software package combining three utilities covering graphics, animation and sound. The graphics section allows you to pain and draw

on the screen by controlling a simulated pencil and brush either by joystick or keyboard. The sound section of the package turns the 64 into an intelligent synthesiser with a wide choice of voices and effects. The Animation utility combines facilities from both the Graphics and Sound programs.

Cadpak 64
Adamsoft
£35.00
Available from:
18 Norwich Avenue,
Rochdale,
Lancs. OL11 5JZ.

Described as a Interactive Computer Aided Design Package. Cadpak has many of the facilities necessary to turn your 64 into a computerized drawing board. Armed with a high quality light pen, which is not included in the package, you can call up pre-defined shapes or use the freehand draw facility to produce very detailed displays which can also be hardcopied to popular printers.

Go Sprite
Mirrorsoft
£9.95
Widely Available

A sprite utility which enables you to design up to 32 multi-coloured sprites on the screen and try them out in any sequence. You can position them back to front, upside down stretched (horizontally or vertically), or in negative form. Includes the essential conversion program to convert your sprite designs to 'data' statements for inclusion in your own programs.

Graphics Designer
Supersoft
£9.95 (Cass),
£11.95 (Disk)
Available from:
Winchester House,
Canning Road,
Wealdstone, Harrow,
Middlesex HA3 7SJ

A comprehensive graphics design package which allows control of the 'brushes' palette and canvas' via joystick and keyboard, or keyboard alone. With over 30 commands selected directly from the keyboard, you can create your masterpiece. Easy to follow instructions are given on how to incorporate your designs in your own programs.

Graphics Master
Mi Chip Software
£7.50 (cass)
£9.50 (disk)
Available from:
9 Carolina Road,
Lloodadeo,
Gwynedd LL30 2TY.

Allows the design of both user defined characters and sprites to be made simultaneously and then saved for future use in your own programs. Contains many unique commands to create effects such as scrolling and rotation of graphics characters.

Graphirt
SSF Computers
£15.95 (Cass)
£19.95 (Disk)
Available from
82 Furnace Drive,
Crawley.
W. Sussex RH10 6JE.

A light pen based graphics package with the light pen itself included along with the supporting software. You draw directly onto the screen with the light pen and your creations can be saved or recalled from tape or disk. Sprite design is catered for as well as a screen dump to a printer.

Paintpic
Kuma Computers
£19.95
Available from:
Horseshoe Park,
Horseshoe Road,
Pangbourne,
Berks. RG8 7JW.

Claims to be 'the complete colour drawing and painting application using multi colour bit map'. No extra hardware requirements. Extra facilities include: Pen Brush and Text modes, Curved/Straight lines, Pen and Brush Fills. Colours settable horizontally, vertically, diagonally or by dot, and easy character movement.

Pencerome
Talent
£17.95 (Cass)
£19.95 (Disk)
Widely Available

A Graphics package with a clear well written manual all the 'regular' shapes are included in the program, you just state the required parameters. Movement on screen can be either by keyboard or joystick and mistakes are easily rectified. Apart from the full range of colours, 22 different textures can be created and displayed, and all your masterpieces can be saved to tape or disk for later retrieval.

Picture Builder
Commodore
£9.99
Widely Available

Picture Builder presents you with a palette of 121 different colour shades and a collection of character sets containing over 250 shapes. Picture composition is therefore a matter of positioning the appropriate shape with the aid of joystick or keyboard, in the appropriate colour on the chosen space on the screen. Full title of package 'Rolf Harris Picture Builder'.

Spritemaster
JRS Software
£4.95
Available from
19 Wayside Avenue,
Worthing, BN13 3JU.

A sprite creation program where each sprite is displayed on the screen in 2 separate sizes. On completion the Basic Code is generated for inclusion in your own program. Simple little program that makes sprite design that little bit easier.

Turtle Graphics II
Hesware
£50.00
Widely Available

The Turtle in this program is invisible apart from a point which you move around the screen with joystick or keyboard. The program is easy to operate and ultra user-friendly, options are selected from menus which appear on the screen at the appropriate moment. Easy to incorporate into your own programs.

EDUCATION SOFTWARE

Educational software for very young children has begun to mushroom for the Commodore 64, after a faltering start. Virtually all packages are intended for home use and are generally of good quality. The most useful software should contain elements of game-play, a certain amount of parental involvement and make use of the 64's superior graphics and sound capabilities. But not a great deal is available for older children apart from 'O' Level and CSE exam revision courses.

FOR THE 64

AIRCRAFT
Piper Software,
Pan Books,
18/21 Cavaye Place,
London SW10
£7.95

Four programs for middle school children in which they have to identify planes, play a game involving estimating the range of planes and their height and bearing, operate a flight simulator and test a plane back to its banger. Accompanying book and program notes.

ASTRONOMY
Piper Software
Pan Books,
18/21 Cavaye Place,
London SW10
£7.99

Five programs for 10 year olds and above including two games exploring the stars and passing a test to become an astronaut, a databank of information on planets, an introduction to constellations and an explanation of phases of the moon with a trip around the zodiac. Accompanying book and program notes.

ATTACK ON THE SOMME
Tressell Publications,
138 Carden Avenue,
Brighton,
Sussex BN1 8NH.
£13.00

This package has been designed to introduce pupils in the secondary school to the technicalities and details associated with a major Allied attack on the Western Front in France during the First World War in 1916. It cannot be faulted and is particularly good in how it develops empathy and an increased readiness to consider the fundamental issues related to war and peace. Good resource materials provided.

AZTEC – HUNT FOR THE SUN GOD
Hill MacGibbon,
St. Bartholomew House,
92 Fleet Street,
London EC4.
£8.95

A tremendous adventure program for youngsters with three dimensional graphics intended to help develop spatial awareness and mapping skills as well as the player's powers of deduction. Will Quick Lizard's dream come true? You'll have to play the game to find out! Poster included in pack.

BIRDS
Piper Software
Pan Books,
18/21 Cavaye Place,
London SW10
£7.95

For 10 year olds and above five programs including Birdbrain – a questions and answer game on facts about birds. Birdlander – a game to land birds on their favourite perches; Birdsquare – a wordsquare containing the names of birds; Bird Migration – a game to steer birds back from their winter habitat; and Birdfile – a database containing user's own observations and facts on birds. Accompanying book and program notes.

BLOCKBUSTER
Argus Press Software Group,
1 Golden Square,
London W1R 3AB
(01-437 0626)
£9.99

For the under eights this program is one in the Clever Clogs series written for Argus by Computertutor and involves solving a puzzle made up of 12 blocks. Aims to teach shape recognition, reflections and rotation. More for the home than school. Five levels of difficulty plus supplementary knowledge packs. Lively graphics. Others in the same series include: Sam Safety (where you have to teach Sam the Highway Code and guide him safely home) and Ship Shapes (includes five games to encourage shape recognition for three year olds and above).

BMX NUMBER JUMP
Longman Software,
Longman House,
Burnt Mill,
Harlow,
Essex CM20 2JE
£7.99

Recommended for six to 10 year olds this is a maths games based on BMX bike riding. Practises addition subtraction and multiplication for numbers 0 to 99 with seven different levels of difficulty. Brief instructions are included.

CAESAR'S TRAVELS
Mirrorsoft,
Holborn Circus,
London EC1P 1DQ.
£7.95 (cass)
£10.95 (disk)

This is a much acclaimed adventure for young children featuring the lovable Caesar the cat. Children can choose one of 18 stories to follow, each of which is complete in itself. Only six keys are used throughout and there is an accompanying booklet containing all the stories in the software, plus keyboard overlays to simplify things further.

CHILDSPLAY
Polarsoft Ltd.,
40A Queen Street,
Hitchin,
Herts SG4 9TS.
£9.95

This pack contains 10 educational games for nine to 13 year olds for at home as well as in school. They provide practice in the four rules, sorting letters into alphabetical order, equation and inequality signs, spotting the difference between words that look and sound similar, estimation, hangman and co-ordinates. Lots of documentation.

DESIGNER 64
Studio Software,
Rowan,
Western Road,
Jervis Brook,
Crowborough,
East Sussex TN6 3EY.
(09926 62929)
£32.95

Graphics package which simplifies the use of the computer's standard graphics character set and enables character arrangements to be displayed under program control. The program generator encodes all or part of a design and turns it into a new program. Designs can be saved on disc or tape and design files can be linked together and printed out. Seven demonstration files are included as is a comprehensive user guide.

DINOSAURS
Piper Software,
Pan Books,
18/21 Cavaye Place,
London SW10.
£7.95

Again for 10 years olds and above four programs about prehistoric creatures. In Birth of Life, you have to control evolution, in Life on Land, you have to survive as a land creature in the age of reptiles; in Mission 1, you must identify giant creatures on a strange planet; and in Mission 2 steer a Pteranosaur to catch as many fish as possible. Accompanying book and program notes.

EXAM REVISION
Longman Software,
Longman House,
Burnt Mill, Harlow,
Essex CM20 2JE
£7.95 each

Exam revision packs for O level and CSE students covering Chemistry, Computer Studies, Maths, physics, Biology and French. Five programs in each pack. Chemistry includes Elements, Mole, Reactivity; Computer Studies covers Visicode, Putin Files and Logic; Maths includes Transform, Trigonometry, Stats and Odds and Physics contains Formulae, Circuits, Light and Machine. All the packs contain a database program too. Good instructions given.

FLIGHT PATH
Storm Software,
Wiacbester House,
Wottos Grove,
Sherborne,
Dorset
(0939 813928)
£17.95

This is a flight simulation in which children take on the role of an airline captain and plan a flight across Europe. Accurate calculations and logical decisions have to be made in order to achieve a successful flight. There is a choice of destinations and departures from 21 European airports. Factors to take into account are weather conditions, stopovers and type of aircraft. Wind and speed tutorials are included in the program. Extensive documentation in the form of teacher's notes, work sheets and further suggested teaching topics.

GEOGRAPHY
Scisoft,
5 Minster Gardens,
Newthorpe,
Eastwood,
Nottingham NG16 2AT.
£6.95

Several programs are contained in Geography. In Treasure Hunt there are three games based on map reading, the use of the compass, directions, bearings and estimation of distances. In Around Britain in 45 Hours you have to find the hidden name of a city or town, travelling by road, rail or air, with a limited supply of money, a simulation of the spread of disease in woodland, and there is a database containing information on the countries of the world.

GERMAN
Scisoft,
5 Minster Gardens,
Newthorpe,
Eastwood,
Nottingham NG16 2AT.
£9.95

For nine to 14 year olds there are four programs using vocabulary at the seaside, in the home, on holiday and in a cafe. You can either opt for sentences written in German with a word missing which has to be inserted, or put words into their correct order in sentences selected randomly from a bank of sentences. Three levels of difficulty are provided as well as a booklet.

GET READY TO READ
Commodore Business Machines (UK) Ltd.
1 Hunters Road,
Weldon Industrial Estate,
Corby,
Northants NN17 1QX.
(0536 209252)
£12.99

For the under eights, this pack of four cassettes or discs is designed for young children as an introduction to reading. Each tape or disc contains nine programs which take a structured approach to a different aspect of learning letters and sounds. Marvellous value for money with good instructions for the parent or teacher.

GORTEK & THE KRYPTOBYTEO
C9M (UK) Ltd.
Chalksoft Ltd.
37 Willowglen Road,
Worcester WR3 7QP
(0905 55192)
£12.95

This is a follow up to Gortek & the Microchips which aims to teach programming using REM and LIST statements, storage of data etc. Also provided practice in simple program editing and other programming features. Lots of documentation included. This is rather a novel approach to the subject.

INTO THE UNKNOWN
Tressell Publications,
130 Carden Avenue,
Brighton,
Sussex BN1 8NH.
£20 (Cass)
£21.60 (disk)

This is an extensive simulation that involves children in a simulated voyage of discovery during the Great Age of Exploration in the 15th century. There are all kinds of encounters but the beauty of this program is the amount of work it encourages away from the computer – in the form of mapwork, written reports of the voyage, discussions about the next move and much more. Extremely authentic and highly imaginative – one of the outstanding programs of 1984.

FOR THE VIC

RING ARTHUR'S QUEST
Hill MacGibbon,
St. Bartholomew House,
92 Fleet Street,
London EC4.
£6.95

Another adventure from this relatively new company with 3D graphics portraying all the characters in the land of King Arthur including Morgana Le Fey, Lancelot and Merlin. Will Arthur break the evil spell that Morgana has cast? Poster included for your wall.

FOR THE 64

MATHS
Scisoft,
5 Minster Gardens,
Newthorpe,
Eastwood,
Nottingham NG16 2AT.
£6.95

There are five programs for nine to 14 year olds dealing with tessellations, graphs, working out how a number machine works, addition and subtraction in two games, and running a factory to make a profit.

MUSIC MACHINE
Longman Software,
Longman Group Ltd.,
Longman House,
Burnt Mill,
Harlow,
Essex CM20 2JE.
(0279 26721)
£9.99

This program takes you note by note through the composition of a tune. Your choice of notes is used to build up a tune which is played back once it is completed with full harmony backing and an option of musical sounds. Notes can be added to or altered in your composition.

OLYMPICS 84
Storm Software,
Winchester House,
Wootton Grove,
Sherborne,
Dorset
(0935 813528)
£XX

Two cassettes are provided. Input enables the user to record the name and country of each medal winner and the winning score of every event in the Olympic games. These can then be compared with results from the previous two Olympics. History contains the results of every current Olympic event back to 1896 showing the winners of medals by nationality and winning scores. Good documentation.

OSPREY!
Bourne Educational Software,
Bourne House,
The Hundred,
Romsey,
Hants. SO5 8DY.
£9.96 (cass)
£11.05 (disk)

Brilliant simulation covering wildlife and conservation in a unique way. The user is given responsibility for protecting the precariously small osprey population in the Scottish Highlands from egg stealers, huntsmen, tourists, fish farmers and many others. Thought provoking and stimulating. Developed in conjunction with the Royal Society for the Protection of Birds. Superb graphics and accompanying resource material.

PICTURE BUILDER
Hill MacGibbon,
St. Bartholomew House,
92 Fleet Street,
London EC4.
£9.95

A marvellous graphics program which enables complex patterns and pictures to be created very easily. The program provides a drawing board and a paint palette with easy selection and manipulation of simple shapes to create pictures. Helps younger users to develop their knowledge of shape and colour. This one comes highly recommended. The pack contains a good 20-page booklet too

RIDDLE OF THE SPHINX
Longman Software,
Longman Group Ltd.,
Longman House,
Burnt Mill,
Harlow,
Essex CM30 2JE
(0279 26721)
£7.95

Fit words to the sphinx's pyramid which have to be checked against its secret scrolls (includes a built-in 10,000 word dictionary). The score for a word depends on what letters are used. Of course, the highest score wins

RDLF HARRIS' PICTURE BUILDER
Commodore Business Machines (UK) Ltd.,
1 Hunters Road,
Weldon Industrial Estate,
Corby,
Northants. NN17 1QX
(0536 205252)
£11.99

A graphics package based on the building block approach. A palette of 16 colours is available and there are two character sets of 254 characters each. All the instructions for filling the screen with a design, changing background colour, saving pictures and clearing the screen are displayed. The program can be controlled with either a joystick or from the keyboard. Package includes two cassettes and full instructions

SCIENCE 1
Scisoft,
5 Minster Gardens,
Newthorpe,
Eastwood,
Nottingham NG16 2AT
£6.95

Four programs are contained in this pack. Bug is an adventure in which scientific knowledge has to be used to keep a bug alive, a database of the element and their properties, a database on animals with and without backbones, and a game featuring pollination

SNAFFLE
Longman Software,
Longman Group Ltd.,
Longman House,
Burnt Mill,
Harlow,
Essex CM20 2JE
(0279 26721)
£9.95

Snatch letters from the pool to build up words or make a new word by snaffling from your opponent and adding letters from the constantly replenishing pool

STAR SEEKER
Mirrorsoft,
Holborn Circus,
London EC1P 1DQ.
(01-353 0246/822 3883)
£9.95 (cass) £12.95 (disk)

Two programs – Star Seeker and Solar System – which plot the stars and planets seen in the night sky from any position on earth at any time in this and the next century. The programs use menu-driven displays to access information such as the position of the stars, relative position of the planets, rotation of the earth etc. The displays can be printed using an Epson printer

STOCK MARKET
Koma Computers Ltd.,
12 Horseshoe Road,
Pangbourne,
Berks. RG8 7JW.
(07357 4335)
£8.95

This program is aimed at 15 year olds and above and simulates the London Stock Exchange. With each round of the game, news items are given to the players on company shares as well as advice, tips and hints on investments. Can be played by up to four players

STORY HOUSE
Creative Sparks/Thorn EMI Computer Software,
Thorn EMI House,
288 Farnborough Road,
Farnborough,
Hants. GU14 7NU.
(0252 543333)
£7.95

Designed to assist children to develop early reading skills. The program allows the user to write their own story which the computer animates with full colour graphics accompanied by musical effects. It also provides lots of surprise endings. Suitable for six and seven year olds and above. Instructions included

TABLES WIZARD
Hill MacGibbon,
St. Bartholomew House,
92 Fleet Street,
London EC4.
£9.95

A multiplication game where the aim is to build a path from one side of the board on screen to the other, ahead of your opponent (another player or the computer) by answering various sums correctly. Quite a novel idea.

THE MAGIC SWORD
Database Publications Ltd.,
Europa House,
68 Chester Road,
Hazel Grove,
Stockport,
Cheshire SK7 5NY.
(061-456 8383)
£8.95

An adventure for young children featuring a handsome prince, a beautiful princess, a castle with secret passages and dark dungeons, dense forests, deep caves and a wicked witch who lives in a very crooked house. Children travel through the countryside to find the princess and rescue her from the clutches of the wicked witch. Text is in double height characters

TIME TRUCKER
ASK Software,
London House,
66 Upper Richmond Road,
London SW15 2PR
(01-874 6046)
£7.95

A great game for children of all ages which aims to aid the understanding of the relationship between the 12 hour analogue and 24 hour digital clock. The relationship between time and distance is reinforced while driving your truck around country roads and picking up produce from farms on the way to take back to the depot within a time limit. Good use of sound. Program incorporates many additional challenges with several levels of difficulty. Accompanying notes

3D HYPERMATHS
Longman Software,
Longman House,
Burnt Mill, Harlow
Essex CM20 2JE
£7.95

Space odyssey that practises maths skills. As the Hypermaths space ship speeds through pathways of a black hole, quick mental calculation is needed to guarantee a safe journey through the outer reaches of the universe. Practises the four rules for numbers between 0 and 99 with a variety of difficulty levels. Brief instructions included.

TONY HART'S ART MASTER
Commodore Business Machines (UK) Ltd.,
1 Hunters Road,
Weldon Industrial Estate,
Corby,
Northants. NN17 1QX.
(0536 205252)
£11.99

This graphics package really makes use of the high resolution graphics capacity of the Commodore 64. There is a choice of 16 colours and a help screen gives full details of possible commands. A second screen enables a picture to be duplicated so the results of moving a line, changing colour etc., can be judged. Enclosed shapes can be filled in, different areas of the screen can use different colours, automatic circle generation and repetition of shapes stored already in memory are all featured. Either the keyboard or a joystick can be used. Two cassettes or discs are included in the pack as well as sample pictures and instructions.

WORD TRAY WIZARD
Hill MacGibbon
St. Bartholomew House
92 Fleet Street,
London EC4
£8.95

A game which aims to develop vocabulary and textual understanding. Players have to reveal a hidden message or sentence by letter buying and prediction. A version of this program is to form part of a problem solving series developed by the Microelectronics Education Programme. Suitable for 10 year olds and above.

WORD WIZARD
Longman Software
Longman Group Ltd.,
Longman House,
Burnt Mill,
Harlow,
Essex CM20 2JE
(0279 25721)
£7.95

A game in which you have to spot the anagrams in the Word Wizard's grid of constantly changing letters. Words are checked with the built-in dictionary.

WORD WOBBLER
Longman Software,
Longman House,
Burnt Mill, Harlow,
Essex CM20 2JE
£7.95

Spelling game that encourages children to concentrate on spelling words correctly. 1 500 words are contained in the program which are divided into five levels of difficulty. You can insert your own word list if required. Brief instructions included.

WORDS AND PICTURES
Chalksoft Ltd.,
37 Willowslea Road,
Worcester WR3 7QP
£9.95

The four programs in this pack are for young readers who are learning to recognise words. They feature Freddie the Frog from the tune Five Little Speckled Frogs. Forty-seven words are contained in the program and children learn to recognise them by matching these words to simple pictures on the screen. Parents are given guidance in using the programs in the accompanying booklet.

DECIMALS
Chalksoft Ltd.,
37 Willowslea Road,
Worcester WR3 7QP
(0905 55192)
For the expanded VIC-20
£9.25

Graded set of programs for brushing up on decimals. Covers the four rules, tests level of understanding, sets practice excercises and checks progress.

FOR THE VIC

PIXIE PACK
For the VIC-20 from CBM
Commodore Business
Machines (UK) Ltd
1 Hunters Road,
Weldon Industrial Estate,
Corby,
Northants NN17 1QX
(0536 205252)
£11.99

Six programs which aim to introduce and reinforce early number concepts. The programs include Pixie Count where the number symbol has to be matched to the number of pixies that appear on screen; Pixie Steps which practises ordering, Pixie Add; Pixie Bump matches a number symbol with a number of mushrooms. Pixie Words teaches that a number quantity is represented by a symbol, and Pixie Maze is a game involving addition or subtraction. All the programs use a joystick and accompanying the three cassettes is an instruction booklet.

LEISURESOFT

This is the section in which we've put all the software that doesn't fell easily into any of the previous categories. like packages that make music, help you to design your own games or even those that deal with such diverse subjects as astronomy and dieting.

GAMES DESIGNER

Adventure Writer
Codewriter
£24.95

Repackaged disk version of a highly acclaimed program called 'The Quill' from Gilsoft. It's a true text adventure designer that will produce a stand-alone game of commercial quality – and quite a few have already been produced. Codewriter's disk version comes with an enhanced manual. See 'The Quill'.

Games Creator
Mirrorsoft
£12.95

A utility program designed to let you produce arcade-type games, both maze and shoot em ups. Menu options allow you to produce sprites, sound and graphics and the rules for action. A number of sample programs are included. But the package will not let you produce a stand-alone game – the program must be present.

The Quill
Gilsoft
30 Hawthorne Road
Barry
South Glamorgan
£14.95

Although Codewriter has the marketing rights for the disk version of this program Gilsoft still sells the much cheaper tape version.

Scope 64
Codewriter
£17.95 (tape)
£19.95 (disk)

Another repackaged though identical version of the original Scope from ISP Marketing. Scope is really a language (pseudo-assembler) specially designed for producing games. That means it requires some learning to use it most effectively. Scope supports 40 commands has a comprehensive 60 page instruction manual with demo routines. There's also a Scope Users Club and hotline facility.

The Joffe Plan
Mirrorsoft
£9.95 (cass)
£12.95 (disk)

Diet program that comes with the book by Professor Justin Joffe professor of psychology at the University of Vermont. The program assesses your present height, weight and age and recommends a diet and activity regime personal to you. Long term diet approach based on a credit and awards system.

Star Seeker and Solar System
Mirrorsoft
£9.95 (cass)
£12.95 (disk)

Star Seeker plots the most prominenet stars seen in the night sky from any position on earth at any time in this and the next century. Solar System does the same thing for the planets. Options enable you to obtain information on individual stars, draw constellations, simulate the rotation of the Earth throughout the night and output the displays on a Epson printer. Similar options are available for the planets program.

FOR THE VIC

The Games Designer
Mastertronic
£10.95

Repackage of a long-available program for the unexpanded Vic, now with revised and more comprehensive manual. The program lets you design graphics, screen layouts, theme tunes, sound effects, playing formulations and other facilities for an arcade-type game. The package also includes four games (Kanga, Zyon, Krazy Maze) which you can customise. There's also a program to let you save your efforts on to tape.

MUSIC

Composer 64
Vulcan Computing
32 Guildford Road
Fornham, Surrey
GU9 9QB
£9.95 (tape),
£10.95 (disk)

Composer/synthesiser package that lets you compose on to a stave. Features preset instruments, 5-octave range, time signatures, rythms and full ADSR control. Load and save facility to tape or disk. Note range extends from demi-semi quaver to semi-breve.

Multisound Synthesiser
Romik Software
£14.99

Main control screen shows rows of pseudo slider controls, which toggles between a special effects panel. Has background generator to store repetitive patterns and two playback modes. Allows saving of tunes and merging with tunes still in memory. Easy package to use with good comprehensive manual.

Music Composer
Commodore
£9.95

Main feature of this package is that music actually scrolls across the screen, the notes appearing as you hear them. Has a number of preset instruments and option to play on the 64's keyboard. But has a slightly cumbersome method of composition – a rather simple package.

Music System
Island Logic
St Peter's Square
London W6
£24.95

Comprehensive package for creating, playing and printing your compositions into musical notation. The 'edit' mode lets you compose directly on to a musical stave. Full ADSR adjustment is possible as well as key transposition. This program is a conversion from the BBC micro and should be available on the 64 by February.

Musicalc
Musicalc UK
The Metropolitan
Enfield Road
London N1
approx £160 complete

Most sophisticated and comprehensive synth package yet produced for the 64. It comes in three modules: Synthesiser/Sequencer (49.95), Score-writer (£34.95) and Keyboard Maker (34.95). Three template disks are also available for West Indian, electro-pop and drum rythms. Cartridge version of Musicalc 1 should be available soon.

Synthy 64
Ademsoft
19 Norwich Avenue
Rochdale, Lance
£9.99 (tape),
£12.50 (disk)

Allows you to compose and edit as you would write Basic, in three voices. 'Tracer' facility lets you see changes in pitch and waveform. But the music is non-graphically represented. Has load and save facility and ability to list to printer. Although composing is long and tedious, dedicated effort can produce excellent results.

Ultisynth 64
Quicksilva
£14.95

Menu driven options for load, save, play and record. Gives choice of six preset accompaniment and displays on-screen ADSR values for each voice. Good manual which includes routine allowing you to include music in a Basic program. But generally not a very user-friendly' package.